

**HAZARDOUS MARINE LIFE TO AVOID, PG. 54**

**Rodale's**

**The Magazine Divers Trust**

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# SCUBA DIVING



*How to  
Survive*  
**20 Dive  
Disasters**

**Is Your  
Computer Safe?**

*Find Out for Sure, p. 78*

**Runaway Inflation**

*Can You Handle It?*

**8 Great Safety Add-Ons**

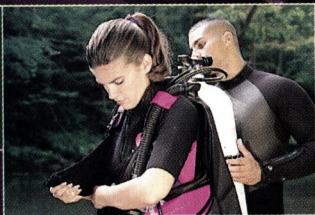
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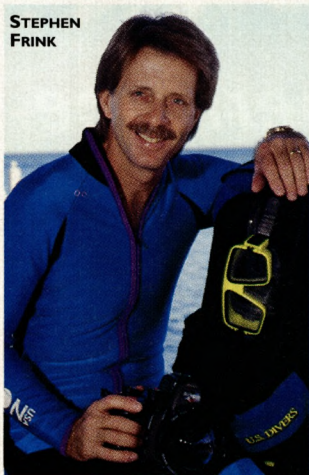
By David Taylor

This month's special issue focuses on dive training and safety for one simple reason: Unlike gardening tips or stereo reviews, the advice in a dive magazine can make the difference between life and death. That's why when it comes to underwater skills, dive equipment and vacation travel, we pick writers who can deliver the latest and most authoritative information available. For example:

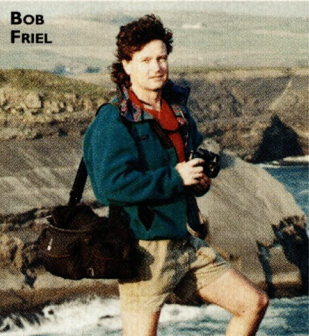
One of the most respected instructor-trainers in America, Jon Hardy has devoted over 40 years of service to the dive industry as a teacher, author and leader of national diving organizations, including tenure as executive director of NAUI (National Association of Underwater Instructors). As founder of RSD's ScubaLab on Catalina Island, Calif., Jon still logs 500 dives a year carrying out equipment evaluations, certifying instructors for SSI (Scuba Schools International), and serving as America's foremost expert in diving accident investigations. Jon's groundbreaking equipment reviews and training articles are eagerly awaited in each issue, and this month's evaluation of the new generation of dive computers on page 65 is no exception.

South Florida travel writer Bob Friel worked his way through college as a dive instructor before graduating in 1984 with a degree in marine science and heading off to pursue his dream career as an underwater writer/photographer. His two books, *Underwater Maldives* and *Underwater Bahamas*, were researched during post-college stints as a dive pro in those areas before his return to the U.S. and a career

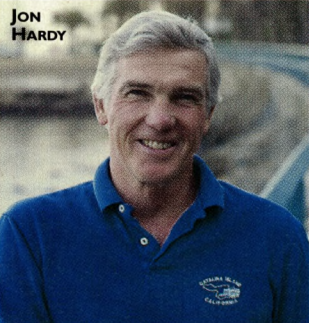
STEPHEN FRINK



BOB FRIEL



JON HARDY



in television, serving variously as an underwater cameraman for "Date-line NBC" and MTV. After 3,000 dives in everything from a Guatemala volcano to a Florida sinkhole, from Monterey Bay to Galway Bay, Bob says his most memorable dives are those in the Maldives with gray reef sharks. Bob's offbeat humor has led us to coin a new word: "Frielism"—like realism, but a lot funnier. Check out this issue's "How to Survive 20 Dive Travel Disasters" on page 49 to see what we mean.

Hard to believe, but Stephen Frink, the world's most published underwater photographer, got certified in 1974 in order to land a job cleaning yacht hulls in Southern California. A grad student trying to make ends meet at the time, the industrious Frink nonetheless saved enough money to purchase his first Nikons, took some "pretty horrible pictures" (his words) and the rest, as they say, is history. As RSD's Viewfinder and

Portfolio editor, Steve's job these days is to show aspiring photographers how to get their work into magazines like *National Geographic*, *Travel & Leisure*, *Natural History*, *Time*, *Newsweek* and a host of other publications that regularly call on Steve for some of the most stunning underwater images ever taken—and recently collected in his book *Wonders of the Reef*. An instructor for the Nikon School of Underwater Photography, Steve tells you how to bring the reef alive, critter-by-critter, in this issue's article on shooting macro, page 100.

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Rodale's Scuba Diving (ISSN 1060-9563) is published monthly, except February, October and December by Rodale Press, Inc., 33 E. Minor St., Emmaus, PA 18098. Periodicals postage paid at Emmaus, PA, and additional mailing offices. POSTMASTER: Send address changes to Rodale's Scuba Diving magazine, P.O. Box 7589, Red Oak, IA 51591-0589. Subscription rate for 1 year (9 issues): United States, \$19.97; Canada, \$24.97 Canadian funds, includes GST #R122988611; all other foreign, \$29.97 U.S. funds prepaid.

In Canada, postage paid at Gateway, Mississauga, Ontario; Canada Post Corporation International Publication Mail (Canadian Distribution) Sales Agreement No. 738867. Send returns to Scuba, 100 Armstrong Ave., Georgetown, Ontario L7G 5S4.

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KELLY TAPARI



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The contents of this publication, including diving techniques and use of diving equipment, reflect the individual experiences of the writers and are not necessarily the recommended practices of Rodale Press, Inc. and are not intended for the sole purpose of diving instruction. Individuals seeking to participate in activities described in this publication should be properly trained and/or certified for such by a qualified professional diving instructor. Diving or use of diving equipment by untrained individuals can lead to serious injury or death. Neither Rodale Press, Inc., Rodale's *Scuba Diving* nor its contributors shall be liable for any mishap claimed to result from use of such material.

### On the Cover

Does Amos Nachoum's cover shot of diver Amy Norris with a manta look familiar? Last October, we asked visitors to our web site ([www.scubadiving.com](http://www.scubadiving.com)) to be photo editor for a day and choose a cover shot for an upcoming issue. Amos's shot—taken off Mexico's Socorro Island—raked in 57 percent of the vote, more than the other two selections combined.



AMOS NACHOUM





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# Letters

## Free Your Willy

I found the article on free diving ("Waiting to Exhale," Nov./Dec. '97) exciting and well written. The only confusing part was the statement that humans were once marine animals. My question is: Just when in the evolutionary chain did this occur? Is there any evidence that shows the human skull once contained a passage for blow-holes?

To say that I must believe in this evolutionary silliness in order to develop any kind of breath-holding ability is foolish. My current ability (I have achieved an average breath-holding time of up to two minutes and 35 seconds) is based on an understanding of my physiology and mental abilities, not from some twisted idea that my ancestors were once either Flipper, Willy or some other aquatic mammal.

AL ARTOLA  
FAIRFIELD, CALIF.

## B.C.'ing You

Your article "Editors' Choice: Our Favorite Dive Sites" (Nov./Dec. '97) reminded me of a recent armored car robbery in which the thief grabbed the two nearest bags, which happened to be full of pennies. He didn't go as far or get as much as he could have.

I don't begrudge your editors enjoying the waters of Arkansas, New York and Vermont, each of which received a separate entry in your list. But you left some valuable coins behind, namely, the best cold-water diving in the world. I'm speaking of an area with over 200 documented dive sites, dozens of dive shops, over a dozen charter boats, literally thousands of local certified divers in a booming local dive economy and, in my possession alone, eight books describing it all. When Jacques Cousteau discovered these waters, he was entranced by what he called "The Emerald Sea," an ocean with life more abundant than anything seen in

tropical waters.

And yet, your editors left it all behind. Not one single mention of a part of the globe seemingly created for diving: Puget Sound and the San Juan Islands of Washington, and the islands of British Columbia to the north. It is a diving paradise for those willing to venture into cold waters, and you are the poorer for having missed it.

BRAD CONGDON  
VIA E-MAIL

*Ed.'s note: Our editors in Savannah haven't had the pleasure, but many of our readers have. British Columbia won "Top Destination in North America" honors in our 1998 Readers' Choice Awards. Look for an upcoming dive travel guide to the San Juan Islands and photo feature on B.C., both this year.*

## On the Beach

A comment regarding the "Dive Like a

# Work Hard,



Check our Internet Page for periodic specials <http://www.peterhughes.com> e-mail: [dancer@peterhughes.com](mailto:dancer@peterhughes.com)



Pro" article on surf entries (Nov./Dec. '97). There is either a step missing or you are assuming that all divers have been properly trained to assess appropriate conditions, especially the surf, before they make the decision to gear up and dive. In other words, your Step Two—assessment of conditions—should be done before anything else and again upon entry.

LARRY HENDERSON  
HUNTINGTON BEACH, CALIF.

### Right Said Fred

Fred Calhoun's letter ("Neck-rophobia," Nov./Dec. '97) is dead-on. Why did someone ever start the foolish notion that putting your mask on your forehead is a sign of distress? Believe me, when someone is in distress, the last thing they'll do is take the time to position their mask on their forehead. I've seen too many panics tossed into the depths when someone panics to believe otherwise. The only valid argument for wearing a mask around the neck

is to keep from losing it in waves and swells—and even that one doesn't hold water for divers in calm lakes, rivers and quarries. Fred, you were right on!

NORMAN R. COOTER  
GREENEVILLE, TENN.

### Time On Our Hands

Your "Timeline: A History of Diving" (Nov./Dec. '97) was great except for one detail. I hate to carp (pun intended) but the 1958 entry supposedly shows a picture of *Sea Hunt*'s Lloyd Bridges. The person in the picture is actually Ron Ely, who starred in the short-lived 1987 revival of *Sea Hunt*. Lloyd Bridges starred in the original series, which aired from 1957 to 1961—four full seasons and 139 episodes.

JIM CHAMBERS  
TUCKER, GA.

Your "History of Diving" was well done overall, but there were a number of needs for correction:

- 1933: My research indicates that Commander Louis de Corlieu first patented fins in 1933, and his U.S. patent was granted in 1937, not 1935.

- 1949: "Aqua Lung for Underwater Swimming" was published; it was the first civilian diver manual in the U.S., preceding E.R. Cross' by five years.

- 1953: Dr. Hugh Bradner, with the assistance of Willard Bascom, introduced the first "elastically reinforced neoprene foam frogmen suits" to sport diving via an advertisement in the March 1953 issue of *Skin Diver*.

- 1957: The diver down flag made its first public appearance at the Flint, Mich., boat show in 1957, not 1956.

Perhaps there are those who will say that a difference of one year is nitpicking. But if diving history is to be preserved, it should be preserved as accurately as possible.

DR. SAMUEL MILLER  
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# SEAVIEWS

—Edited by Keith Phillips

## ► MARINE CONSERVATION

# Sharks Attacked



DOUG FERRINE/INNERSPACE VISION

I felt like someone had killed my dog," says Jeff Torode of South Florida Diving Headquarters about finding the carcass of a Caribbean reef shark he had been hand-feeding for four years off Boca Raton. "There was this family of nine sharks we'd been diving with and overnight they were gone."

The disappearance was soon traced to the shark's main predator. "The one body we found was wrapped up in heavy leader attached to a commercial fitting—the gear of a longline fisherman." In one fell swoop, fishermen wiped out an entire school of sharks and a growing dive attraction.

"Divers want sharks," says Jim Abernethy, a Palm Beach dive operator who has also been trying to create shark dives. "Unfortunately, here in South Florida it's been impossible to dive with them consistently because every time we find a small population the word gets out and fishermen move in."

Florida's sharks are only the latest to suffer from such opportunistic fishing. Hammerheads in Galapagos and Baja, sand tigers off the Carolinas, great whites in Australia, and reef sharks in the Bahamas have all been targeted in recent years.

Demand for shark meat, fins and cartilage has made them a prime target. "A typical 100-pound shark dresses out to 60 pounds of meat and three to four pounds of fins," says Jose Castro, a shark specialist with the Southeast Fisheries Science Center. "Shark meat goes for 50 to 80 cents a pound and fins \$25 a

pound for a total one-time value of around \$140 per shark. There is no doubt that a living shark on a dive site or in an aquarium is worth more."

Nowhere in the world are living sharks worth more to the local economy than in the Bahamas. "Virtually 100 percent of our customers come to see the sharks," says Walker's Cay Undersea Adventures dive manager Gary Adkison. "Divers come here instead of Cayman or Cozumel just for the shark 'rodeo.' These animals support a lot of people."

New Providence dive operator Stuart Cove has even done the math. "I figure that each of the 30 sharks we have on our sites is worth \$50,000 a year—and that is just to us. You can multiply that by other operators who visit the same sharks."

Recently, Cove and local divers stopped the Bahamian government from allowing longline fishing off New Providence by recording a

video showing a fishing boat taking a shark on one of his feeding sites. "They had promised to fish only in deep water far offshore—we shot them taking a shark with a view of Nassau close in the background." Since then, Cove reports, fishermen have stayed away from his sites and divers enjoy reliable shark encounters.

And in Florida? "For now we'll keep trying and hope another school takes up residence off Boca," says Torode.

—BOB FRIEL



**HOOKEE:** LONGLINE FISHING CAN DECIMATE ENTIRE POPULATIONS OF TERRITORIAL REEF SHARKS. AS SHARK POPULATIONS DECLINE GLOBALLY, LONGLINE FISHERMEN ARE TARGETING SHARK DIVING SITES FOR A QUICK CATCH.

MIKE NOLAN/INNERSPACE VISION

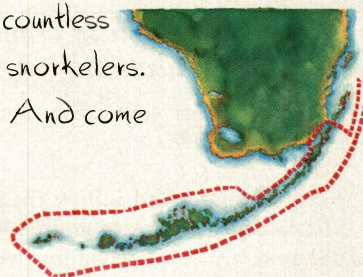


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## Reader Poll

### Fantasy Islands

If we gave you unlimited cash to explore the vast dive world, where would you go first? That's what we wanted to find out in October's Reader Poll.

Your top 10 most dreamed-about destinations were:

- 1) **Australia's Great Barrier Reef**
- 2) **Bikini Atoll's nuclear wrecks**
- 3) **Palau**
- 4) **Galapagos Islands**
- 5) **The Red Sea**
- 6) **Truk Lagoon**
- 7) **Bonaire**
- 8) **Fiji**
- 9) **Yap**
- 10) **Papua New Guinea**

Now for the really good news. Your fantasies can come true. Turn to "Dive The World" (page 25) for the best deals going on dive packages to your favorite paradise, wherever it may be, or try our "Dive Deals" web site at [www.scubadiving.com](http://www.scubadiving.com).

### CRIME & DECOMPRESSION

#### #@!\* Happens

Nothing kills the afterglow of a great day of diving faster than wading ashore to find out your car or hotel room was plundered while you were under water.

Unfortunately, it happens, even on sunny beaches and idyllic tropical islands. The debate on crime in the Letters section of our January issue made us wonder: How often does it happen? And what can we do about it?

Our Reader Poll question this month is:

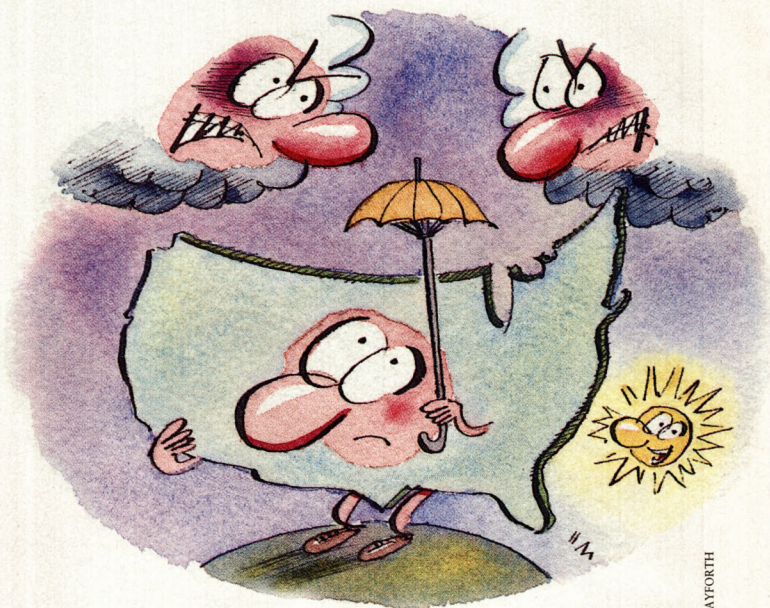
*Have you been the victim of crime while diving or on a dive vacation?*

We'd also like to hear your advice and tips for keeping your stuff safe while you dive.

Dial (800) DIVE-LINE and follow the recorded instructions to participate. You can also respond by e-mail to [Scubapoll@aol.com](mailto:Scubapoll@aol.com), or via our web site at [www.scubadiving.com](http://www.scubadiving.com). America Online users can respond by going to keyword: RSD. Of course you can always write to: Reader Poll, 6600 Abercorn St., Suite 208, Savannah, GA 31405.

### WEATHER

## Who's Afraid of El Niño?



HAL MAYFORTH

**N**ot to downplay the troubles created by El Niño, but the cyclical weather phenomenon is being credited with weakening the Atlantic hurricane season.

Although 1995 and 1996 were particularly fearsome Atlantic hurricane seasons, the number of storms fell far short of predictions in 1997.

"When there's a strong El Niño, you normally have a below-average number of hurricanes and they're weaker. That's exactly what happened," says Max Mayfield, a forecaster with the National Hurricane Center in Miami.

Out of seven tropical storms in the Atlantic Basin in 1997, only three developed into hurricanes (winds of at least 74 mph) and only one developed into a major storm (winds of at least 111 mph). In an average year, there are 10 storms and six hurricanes, two of them major.

"Whatever the reason, whether it's mold on moths' wings, or whatever it is, I'm glad we didn't have any storms," says Bill Letts, owner of the St. Thomas Diving Club, who lost his home and shop when Hurricane Marilyn hit the U.S. Virgin Islands in 1995.

El Niño generally takes place every two to seven years when westward-blowing trade winds weaken, and a warm mass of tropical water pushes across the Pacific from Australia to South America. The water normally reaches the west coast of South America around Christmas.

Signs of the 1997-98 El Niño began appearing last spring, prompting some meteorologists to call it the strongest in 150 years. By early December, more than 9.6 million square miles of the Pacific were as much as eight degrees above normal, according to NOAA's Climate Prediction Center. El Niño conditions are expected to last until March.

—KAREN SHELANSKI



# One Second on One Dive aboard an Aggressor. Just imagine a week



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Photos: Wayne Hasson, Mario Arroyo, & Ray Mains



# SEAVIEWS

## ► VOLUNTEER DIVING

### Year of the Ocean

**W**hen Lord Byron wrote in 1812 that “man marks the earth with ruin—his control stops with the shore,” he couldn’t have imagined that less than 200 years later, 2.7 billion people, more than half of the world’s population, would live within 60 miles of a coastline. If you doubt the impact on the world’s oceans, consider this: In 1996, during the annual underwater cleanup sponsored by the Center for Marine Conservation (CMC), 16,251 volunteer divers from all corners of the earth collected 314,960 pounds of trash from 320 miles of coastline.

The CMC’s annual cleanup is one of many volunteer diving opportunities slated for 1998, designated the Year of the Ocean by the United Nations General Assembly. Make your bottom time count and volunteer for one of them:

#### **Two-week periods from May 31 to Sept. 26 • SAVING MAUI’S REEFS**

You’ll be trained by Eric Brown of the Pacific Whale Foundation to recognize and document 100 fish and coral species every 5 meters along a 50-meter transect. This expedition (you’ll share a house and take turns at cooking with other team members) comes with a price tag—\$1,895 (May 31 to June 14 and September); or \$1,995 (June 15 to Aug. 31). Call Earthwatch at (617) 926-8200/(800) 776-0188, ext. 179, or e-mail [lmunno@earthwatch.org](mailto:lmunno@earthwatch.org) for information on this program and others.



#### **June • BROWARD COUNTY REEF SWEEP**

Volunteers make their own arrangements with local operators to get to the reefs off Broward County, Fla. Call Ocean Watch at (954) 467-1366. (Exact date to be determined.)

#### **July 1-14 • GREAT AMERICAN FISH COUNT**

An annual volunteer fish census in California’s Channel Islands and Monterey Bay National Marine Sanctuary. Free. Divers, snorkelers and free divers needed to conduct the census and transfer information to data forms that the National Biological Service tabulates. Call Nancy Golden of American Oceans Campaign at (800) 862-3260.

#### **Sept. 19 • UNDERWATER CLEANUP AND CONSERVATION MONITORING PROGRAM**

You’ll collect trash under water, record the type of debris on a data collection card, and take photos and video to send to the CMC. For a packet of information, call the Center for Marine Conservation at (800) CMC-BEACH or e-mail [cleanup@cenmarine.com](mailto:cleanup@cenmarine.com) and check their web site at [www.cmc-ocean.org](http://www.cmc-ocean.org).

For up-to-date information on a host of volunteer diving opportunities throughout the year, including field studies by Reef Environmental Education Foundation (see page 57), contact Coral Reef Alliance (CORAL) at (510) 848-0110 or e-mail: [CORALmail@aol.com](mailto:CORALmail@aol.com). —PAT WUEST

MATE PETER D. SUNDBERG U.S. NAVY



The once-secret NR-1 nuclear search and recovery sub is now being used to locate ancient shipwrecks in the Mediterranean and the Black Sea.

## ► WRECKS

### Ancient Mariners

**M**ore than 2,000 years ago, a 100-foot Roman merchant ship plying the waters of the Mediterranean between Carthage and Rome suddenly found itself in the grip of a fast-moving storm. Desperately trying to save their ship, the crew began pushing cargo—rows of amphoras stacked along the sides—overboard. No use. Battered and broken by the storm, the ship and crew were swallowed whole and began the slow, drifting journey down to the seafloor more than 2,500 feet below.

Fast forward to the summer of 1997. Robert Ballard, leading a team of archaeologists aboard the Navy’s nuclear research submarine NR-1, is cruising the bottom of the Mediterranean in the first archaeological expedition to that sea’s deepest regions. The NR-1’s sonar echoes cut into the icy darkness, leading the team to the wreckage of the ill-fated ship.

“It’s a breathtaking, unbelievable scene,” says Ballard, the man who has discovered such notable wrecks as the *Lusitania* and *Titanic*. “Without the waves or currents that batter most shallow wrecks, this 2,000-year-old site is remarkably intact. Most of the wooden structure is gone, but the anchors remain, along with amphoras, delicate glassware, bronze vessels, kitchen utensils and slabs of granite and marble—a veritable catalog of ancient artifacts.”

Over the course of a six-week expedition, Ballard and crew also located and mapped five other Roman vessels dating from A.D. 1 to A.D. 4. “This is an area that’s been traversed by humans for millennia and there’s probably more history preserved in it than in all the museums of the world combined,” says Ballard.

The expedition wouldn’t have been possible without the use of the NR-1, a high-tech marvel used in top-secret Cold War missions. “Comparing this to a submersible would be like comparing apples and oranges,” says Ballard. “It has big truck tires filled with oil so it can drive on the bottom. It has windows, a mechanical arm, and very, very sophisticated sonar. It’s as close to Captain Nemo’s *Nautilus* as you’re going to get.”

Ballard’s next stop? The bottom of the Black Sea, where the complete lack of oxygen has probably preserved its ancient wrecks to an even greater degree than those in the Mediterranean.

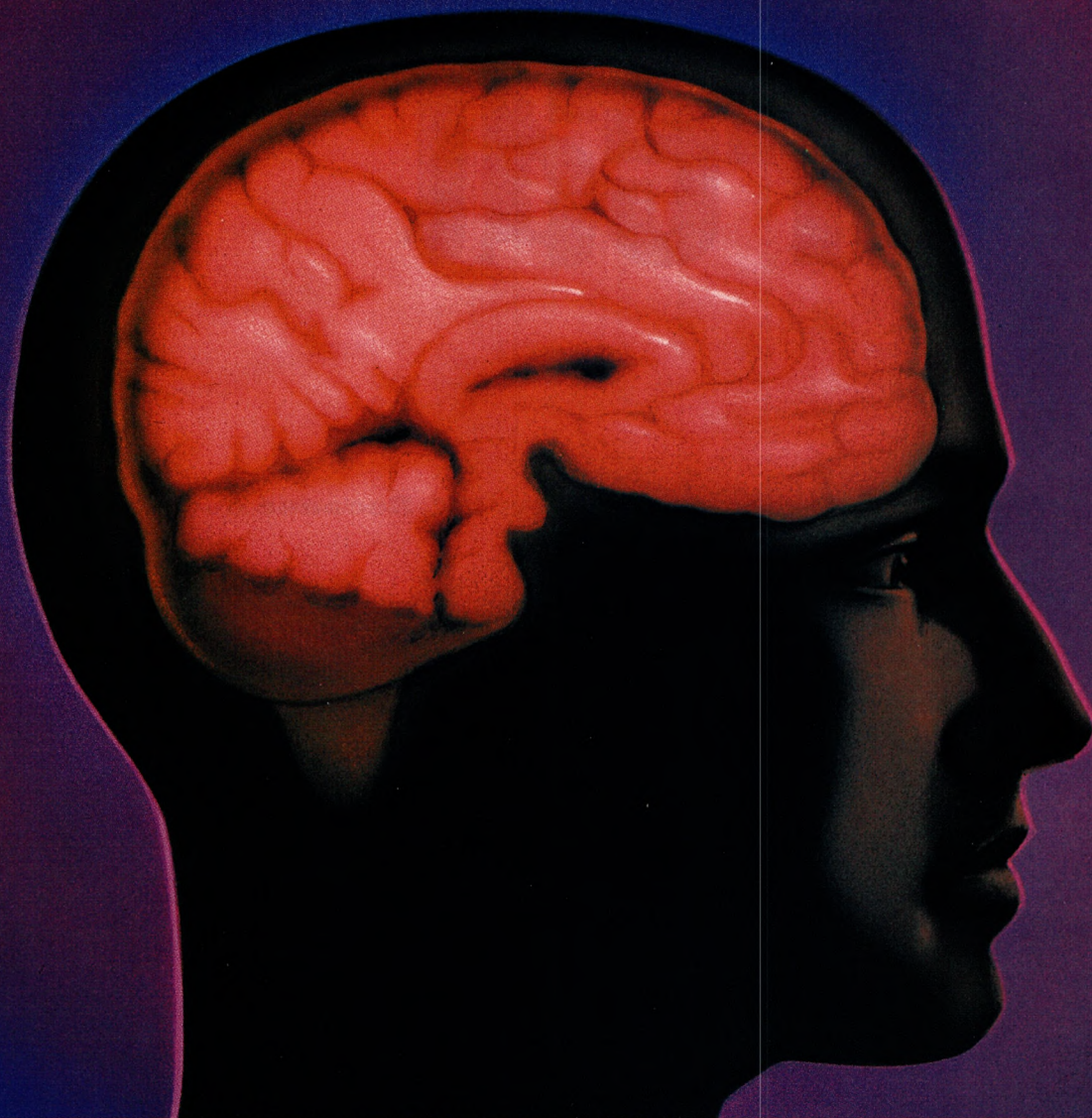
Stay tuned.

—JERRY SHINE

(The regular Seaviews column “Lessons for Life” is on page 114.)



# An Aladin Pro Nitrox takes a load of complex calculations off your mind.



Go diving with an Aladin Pro Nitrox and you're diving with a brain designed to significantly increase your bottom time. The Aladin's brain allows you to dive with an increased Oxygen level, while it does all the complex calculations required when breathing Oxygen enriched air.

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on different mixtures throughout the day, without the need to access a PC.

Naturally there are a number of technical details you need to know about diving on Nitrox before you use a Pro Nitrox. These are taught at recognized dive stores in the USA, Canada and Caribbean.

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# 8 Great Safety Add-Ons

**Our exclusive Save-Your-Ass Kit. Because eventually, you'll have to. ▶ by JOHN FRANCIS**

**O**ver the years we've tried hundreds of diving accessories, some good, some bad and most optional. There are a few, however, we think every safety-conscious diver should add to his or her basic gear. Above all else, you need to be able to breathe, escape from entanglements, and return to the dive boat or call for help. Our picks for doing so:

## SPARE AIR

**PROS▶** Completely redundant air supply; no valves to open—just breathe; compact and lightweight; not buddy-dependent. **CON▶** Limited air supply. **CAPACITY▶** 2.7 cu. ft., 3,000 psi. **DIMENSIONS▶** 11¼ in. long x 2¼ in. diameter; 1¼ lbs. **PRICE▶** \$295 with scuba tank refill adapter and mounting system (a smaller unit is available for \$285). **CONTACT▶** Submersible Systems, Inc., (800) 648-DIVE or (714) 842-6566.

**Rating: ★★★★★**

The "octopus" second stage has become practically ubiquitous and the alternate inflation regulator ("AIR 2," for example) is also popular. But Spare Air goes a significant step beyond either. Unlike these, it backs up your entire air supply system, from tank to mouthpiece. Your octopus will do nothing for you in the most common low-air emergency, the one where you forget your gauges and breathe your tank almost to empty. Nor will your buddy's octopus help if he's not close by. In both situations, Spare Air will save you from your own foolishness and get you back to the surface safely, even from 130 feet. Spare Air is also compact,

lightweight, easy to use and easy to refill at home or in the field from another scuba tank. The result: one of those "why didn't I think of that" products. Its major drawback is its limited air supply; if you've got to deal with an entanglement or an overhead environment before starting up, 2.7 cubic feet may not be enough. Cave divers and wreck divers will still want pony bottles for that reason.

## OCTO-QUIK

**PRO▶** No brains required to operate. **CON▶** No mouth-piece protection. **MATERIALS▶** Nylon webbing, male buckle, piston clip; stainless steel ring. **PRICE▶** \$7.95. **CONTACT▶** St. Claire Diving Products, (800) 235-3483 or (707) 763-3483.

**Rating: ★★★★**

## EDITOR'S PICK

Spare Air. If you haven't got air, nothing else matters much.

Even if every diver has Spare Air or a pony bottle, a back-up second stage will continue to be standard equipment—and so it should, considering the supreme importance of air. What is surprising is how few divers mount their back-up regulator where they or their



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OCTO-QUIK

buddy can find it. Octopus regulators are often left dangling out of sight, out of reach and subject to damage, contamination and entanglement. Instead, the octopus should be clipped in front of you, preferably between your chest and your belt buckle. Fine, but what kind of clip? The "scum ball," which envelops and protects the mouthpiece, is almost as common as the octopus itself, but has several disadvantages. One is that it holds the regulator mouthpiece-up, where many regulators free-flow unless seriously detuned. Second is that it stresses the mouthpiece and the cable tie that holds it to the regulator; either might fail at the worst moment, though admittedly this isn't likely. Yes, you can breathe from a regulator without a mouthpiece, but in an out-of-air emergency you don't need more surprises. Our favorite octopus clip is the Octo-Quik. It loops around the hose next to the

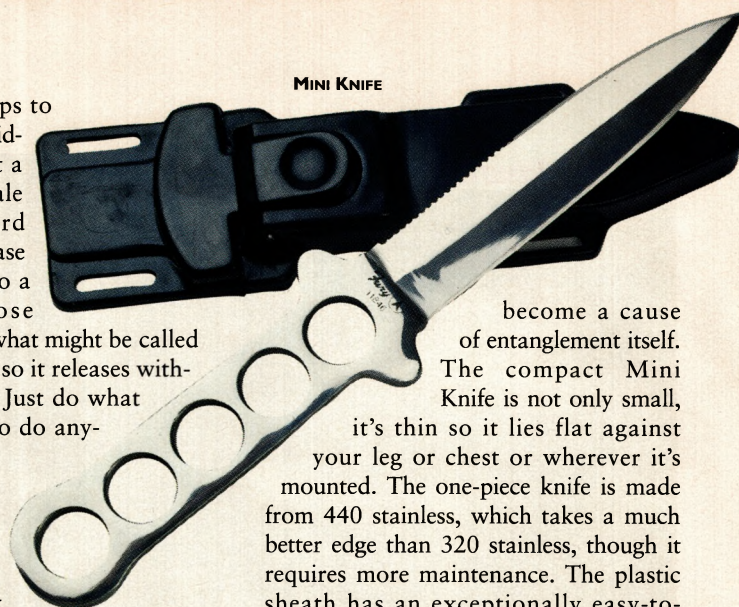
regulator and clips to your BC with a sliding-bolt clip, not a gate clip. The male half of a standard Fastex quick-release buckle snaps into a steel ring, whose round edge gives what might be called a defeatable grip, so it releases without any fiddling. Just do what you were going to do anyway—yank on it.

#### MINI KNIFE

**PROS**► Compact, lies flat, good edge.  
**CON**► Slippery handle. **DIMENSIONS**► 4 in. blade, 9 in. overall with sheath. **MATERIAL**► 440 stainless steel. **PRICE**► \$20. **CONTACT**► Sport Divers Mfg., (800) 327-0244.

**Rating:** ★★★★★

A sharp knife is essential for cutting quickly through entanglements like large clumps of kelp, nets and weed. It should not be too big, however, or it could



become a cause of entanglement itself. The compact Mini Knife is not only small, it's thin so it lies flat against your leg or chest or wherever it's mounted. The one-piece knife is made from 440 stainless, which takes a much better edge than 320 stainless, though it requires more maintenance. The plastic sheath has an exceptionally easy-to-operate one-finger release. And the Mini Knife costs about half as much as knives with molded plastic handles. Yes, the flat handle is a bit harder to grip securely. But that's the price of being thin.

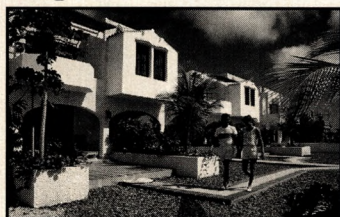
#### SEA SNIPS

**PRO**► Cuts nearly anything one-handed. **CON**► Hard to use wearing mitts. **DIMENSIONS**► 2 in. blade, 9 in. overall. **MATERIAL**► 420 stainless steel. **PRICE**►

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\$15. CONTACT► Sport Divers Mfg., (800) 327-0244.

**Rating:** ★★★★★

Today's sources of entanglement are often man-made fibers which can resist even a good dive knife. The answer is a pair of EMT shears, called Sea Snips in their scuba incarnation. They will cut nearly anything that will fit in their jaws, including, for example,

one-half-inch nylon anchor rope. And they'll do it one-handed, which is gratifying when it's the other hand and arm that's entangled. Knives, by contrast, usually require one hand to hold and one to cut. Sea Snips lie flat against your leg, arm or BC, in a nylon sheath with Velcro closure and belt loops. Even thick gloves will fit into the enlarged finger holes, though divers wearing cold-water mittens might prefer the garden clipper-style shears sold by Ocean Management Systems, (914) 457-1617.

### COM 2 ME SAUSAGE

**PROS**► Easy inflation, rugged construction, bright color. **CONS**► Too big for most BC pockets; gate clip can snag lines. **DIMENSIONS**► Rolled up: 5 in. x

2 in. diam. Inflated: 44 in. x 2 in. diam. **MATERIAL**► Nylon with oral inflator, sleeve for mini light. **PRICE**► \$30. **CONTACT**► Sport Divers Mfg., (800) 327-0244.

**Rating:** ★★★★

You've cut loose from that stray fishing net *and* that monofilament, passed your octopus to your buddy, then you both switched to Spare Air and made it safely to the surface. Congratulations. Now where's the friggin' dive boat? If the surface is choppy, it might be only 100 feet away but hidden by waves. If there's current, it might be a mile away. You need to attract attention with color and movement, and the best way is to wave something bright. We like the Com 2 Me sausage. A spring-loaded oral inflator is easy to operate. One deep breath fills it. It is eye-popping orange, and its sleeve will hold a chem light or mini strobe for nighttime. Deflated and rolled up, it is a bit bulky to fit in a pocket, so it has a BC clip—a snag-prone gate clip, unfortunately.



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COMPASS &  
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DIVE ALERT

## DIVE ALERT

**PRO**► It is really loud. **CON**► Requires compressed air. **MATERIALS**► Plastic and stainless steel. **PRICE**► \$50. **CONTACT**► Ideations Design, (800) 275-4332.

**Rating:** ★★★★★

Another of those simple ideas, the Dive Alert is a horn that fits between your BC's power inflator and its air hose. While you wave your sausage with one hand, toot your horn with the other. This is no anemic toot, either. The Dive Alert is so loud you'd better slip your ears under water first or you're likely to damage your hearing. Otherwise, the device is unobtrusive, adds no significant weight or bulk and requires no pocket or clip. It does require some pressure in your tank and a functioning first stage, however. How much pressure? Our previous review, which indicated 500 psi, was incorrect; the Dive Alert still gives a full-throated screech at 100 psi.

## COMPASS & MINI SLATE

**PROS**► Compact, retractor-mounted. **CONS**► Gate clip, compass vulnerable to damage. **DIMENSIONS**► 6½ in. x 2½ in. **PRICE**► \$81. **CONTACT**► Cetacea, (800) 223-2833.

**Rating:** ★★★

If you had used a compass in the first place, maybe you wouldn't have lost track of the dive boat. Or maybe you can see

the dive boat, but it's a long up-current swim

away. Or there's boat traffic, or kelp, or heavy chop in between. All those situations call for taking a compass bearing, descending 10 feet or so and swimming to the boat under water. In fact, the difference between returning to the dive boat under your own power and calling for help may be a compass. The Suunto SK7 is a serviceable, reliable instrument with the essential features: a rotating bezel, a side-view window and a luminous dial. What makes this one so attractive is the whole package. The compass is mounted on a slate that is big enough for the essential message, yet small enough to fit many BC pockets. The slate also helps you level and aim the compass.

Both are mounted on a 25-inch retractor that clips to your BC. Swinging at the end of the slate, the compass is vulnerable to damage, however.



FIN KEEPER



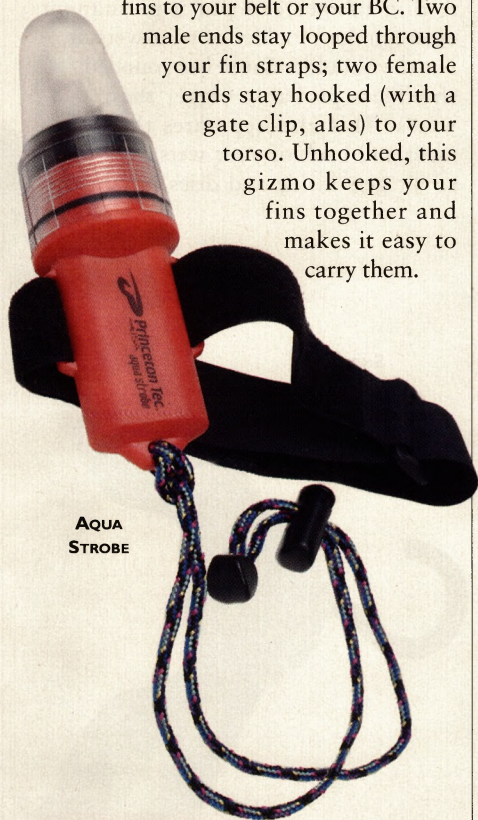
# COOL STUFF

## FIN KEEPER

**PRO►** Look, Ma! No hands! **CON►** Gate clip is snag-prone. **MATERIALS►** Nylon webbing, Fastex quick-release buckles. **PRICE►** \$9.50. **CONTACT►** Cetacea, (800) 223-2833.

**Rating: ★★**

It's a short walk from your gear station to the exit door, but with fins, cameras, lights and who knows what else to carry on a rolling deck it could be an eventful trip. The Fin Keeper lets you hook your fins to your belt or your BC. Two male ends stay looped through your fin straps; two female ends stay hooked (with a gate clip, alas) to your torso. Unhooked, this gizmo keeps your fins together and makes it easy to carry them.



AQUA STROBE

## AQUA STROBE

**PROS►** Compact size, low price. **CON►** Only moderately bright. **BATTERY►** One AA. **DIMENSIONS►** 5 1/2 in. x 1 1/2 in. **PRICE►** \$40. **CONTACT►** Princeton Tec, (609) 298-9331.

**Rating: ★★**

The Aqua Strobe is one of the most compact strobes available, so whether you stuff it in a BC pocket or hook it to a D-ring it won't be much in your way. Powered by only one AA battery, its

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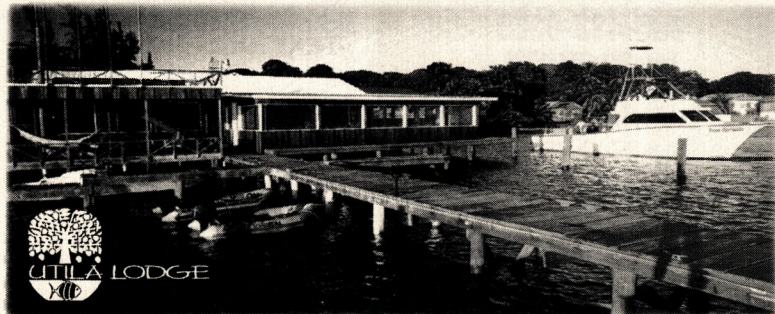
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*Field editor John Francis conducts gear evaluations from his live-aboard boat in Ventura, Calif. He is the author of a children's sports book.*



dive deals

# Dive the World

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## Roatan, Honduras

Thanks to a group of resort owners in Honduras, (Continued on page 28)



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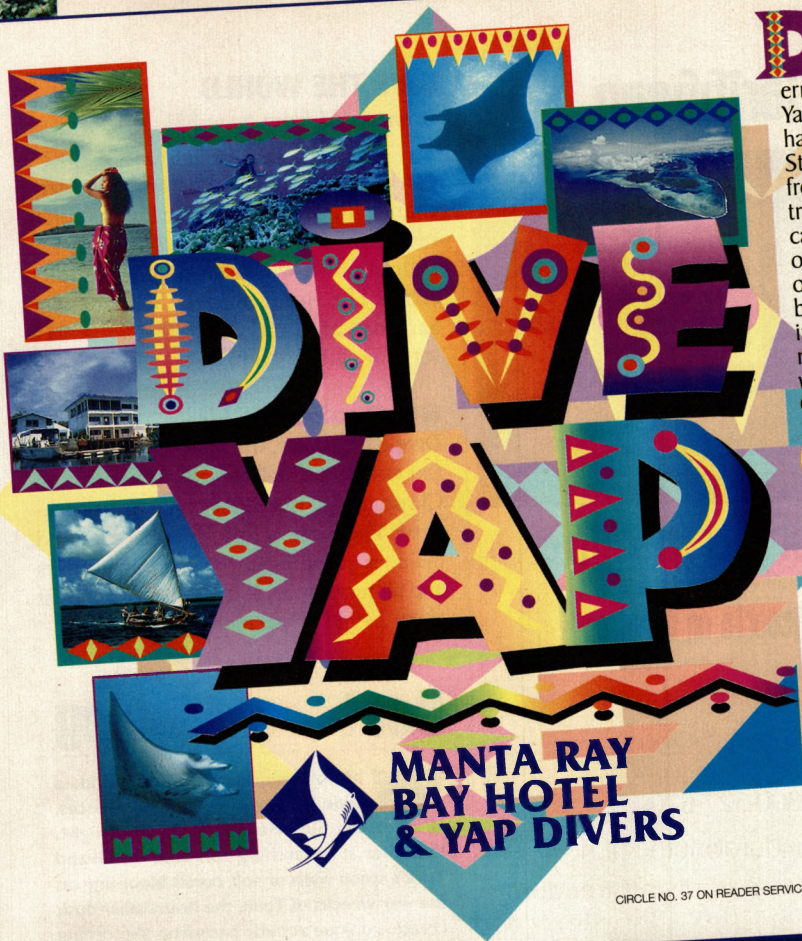
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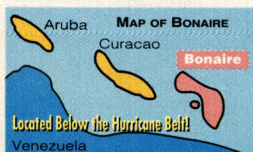
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## DIVE THE WORLD

(Continued from page 25)

you can now book a nonstop, round-trip charter flight on Miami Air International between Miami and Roatan for \$352, roughly half what the flight normally costs. The flight departs Miami every Saturday at noon. Call (800) 599-0014 for more information.

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10. St. Thomas, U.S. Virgin Islands
11. West Palm Beach, Fla.
12. Curaçao
13. Cayman Brac
14. St. Kitts, West Indies
15. Cozumel
16. Key Largo/Pennekamp State Park, Fla. Keys
17. Bermuda
18. Grand Cayman
19. Egyptian Red Sea
20. Palau
21. Bahamas Out Islands
22. Roatan, Honduras
23. Puerto Rico
24. French Polynesia
25. Great Barrier Reef, Australia

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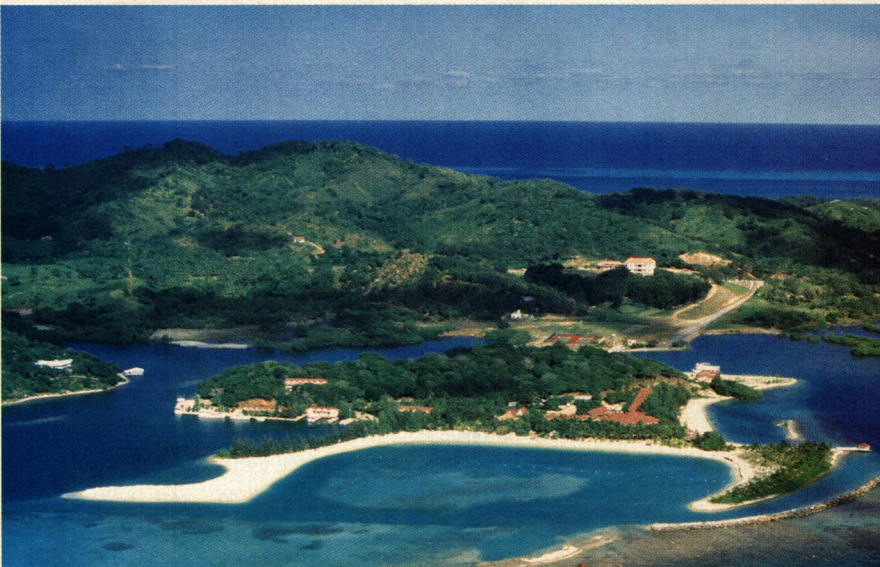
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► by **BUCK BUTLER**

## Light Artillery

**Q:** While on a dive trip recently, I experienced a problem with an underwater flashlight. When I descended with the light on and reached the bottom, I saw that the light had flooded. I turned it off and secured it to my BC and used my back-up light. About the time I was ready to ascend, the light exploded. It blew the lens and eight batteries completely out of the light. Why did this happen? Could it happen again?

RALPH LANE  
VIA E-MAIL

**A:** They probably didn't tell you this when you bought your dive light: sometimes, although very rarely, they blow up.

Jim Graham, director of sales for Pelican Products, which manufactures lights for divers, firefighters and other safety workers, is careful to say "flashlights don't explode, batteries do." And there's some truth to that.

Batteries produce hydrogen gas naturally as a result of corrosion. If hydrogen accumulates within batteries or battery compartments without sufficient release, the buildup of pressure can cause the battery or compartment casing to rupture. Also, hydrogen and oxygen mixtures can be explosive if ignited by a spark or excessive heat.

In most devices that run on batteries, the battery compartments are not sealed tight, so the gas leaks out. But dive lights and other flashlights that are sealed tight by design don't allow dissipation of hydrogen. When the battery compartment of a light is flooded with water, as in your case, it can cause the batteries to short out and produce excessive hydrogen gas.

Flashlight manufacturers have devised ways to combat the buildup of hydrogen gas. All models made by the major manufacturers of dive lights include a chemical catalyst in the battery compartment that is supposed to absorb or recombine hydrogen gas. As an extra precaution, some lights are equipped with a one-way pressure-relief valve to allow hydrogen to escape.

Most dive light accidents are caused by the misuse of batteries. The National Institute of Occupational Safety and Health offers these guidelines for using batteries in sealed lights:

- Do not mix batteries of different brands
- Do not mix old and new batteries

- Do not mix alkaline with nonalkaline batteries
- Do not use damaged batteries
- Ensure that proper polarity is observed when installing batteries
- Prior to use, inspect flashlights to ensure that the batteries are in good condition and that the proper batteries are installed correctly. Opening the battery compartment should allow any accumulated hydrogen to dissipate.

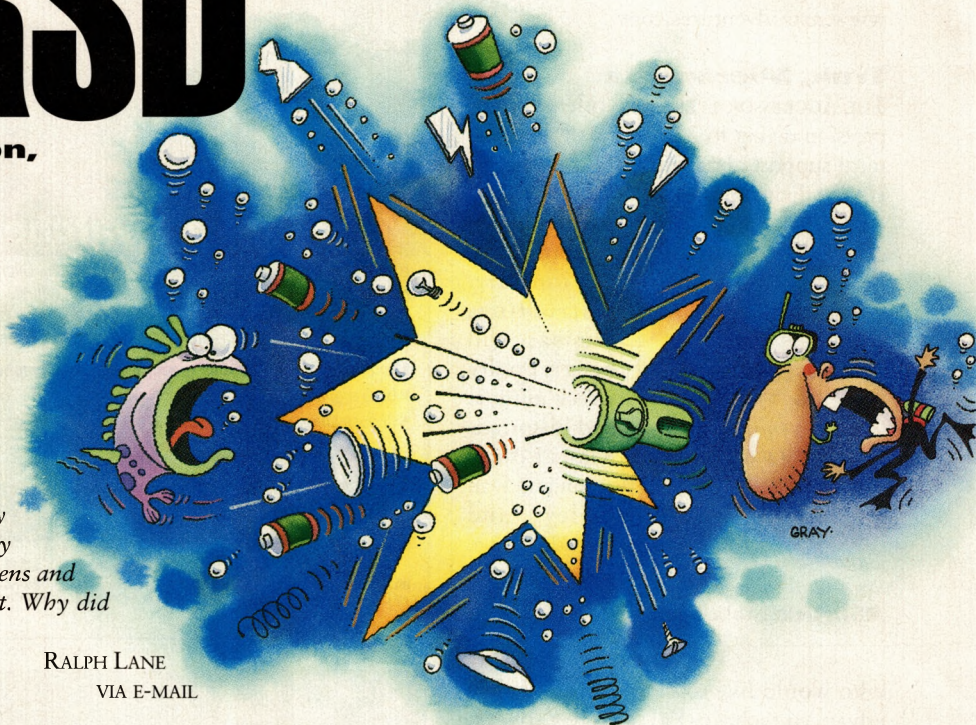
In addition, Ike Brigham of Ikelite, a manufacturer of dive lights and underwater strobes, says "once you've flooded your batteries, *do not* use them."

It's not clear how frequently dive lights explode, but anecdotal evidence suggests that it's very rare. "It can happen," says Brigham. "But I haven't heard about one in two or three years."

"We sell thousands of lights a year," adds Pelican's Graham. "In all the years we've done it, since 1976, we've probably had three or four problems."

## Mystery Critter

**Q:** During a night dive off Grand Turk, a divemaster and I saw an organism we could not identify near the rim of a wall at about 40 feet. The critter was three to four feet long, comprised of spade-shaped segments that were fairly transparent, with a white perimeter. Each segment had an orange "nucleus" toward its posterior end. This organism was not passive in the water—it could spiral and undulate. We shined our dive lights directly on it at very close range with no apparent response or change. The segments were two-and-a-half to three inches long and almost as wide at their broadest point.



STEVE GRAY



*Do you have any idea what this creature could have been?*

PETER BEVES  
SOUTH BOSTON, MASS.

**A:** Nope. But I asked somebody who does. Dr. Laurence Madin, senior scientist at Woods Hole Oceanographic Institution, says you most likely had a close encounter with a chain of pelagic tunicates called salps. These critters are closely related to their sedentary but more colorful cousin tunicates—such as painted tunicates and blue bell tunicates—which you may have seen anchored to a reef. Madin says this particular species is probably a salp called *Salpa aspera*.

"The chain is composed of many identical individuals, each of which is a filter-feeder that pumps water through its cylindrical body, straining phytoplankton out as food, and using the exhalant current for jet propulsion," Madin says.

Each individual in this chain of salps (called an aggregate generation salp) reproduces sexually, but the result is not another chain of salps. Instead, its offspring is a solitary individual that will never hook up with other salps. In turn, these single salps (called solitary generation salps) reproduce asexually, creating a chain of salps and completing the cycle. In other words, these creatures look and act much less like their parents than their grandparents.

While these gelatinous zooplankton may look more like jellyfish than members of your immediate family, the approximately 50 species of pelagic tunicates are more closely related to people than they are to jellyfish. Like us, salps are members of the phylum chordata and are much more complex than jellyfish, which are in the phylum cnidaria.

#### Feeding the Fish

**Q:** A dive instructor once told me if I ever have to vomit under water that I should leave my regulator in my mouth. Seems like a bad idea to me. What do you think?

WILLIAM ETHERIDGE  
PALMDALE, CALIF.

**A:** There are two schools of thought on this one. The puke-through-your-regulator school argues that the gasping breath that follows gastric upheaval is irresistible and potentially lethal. If your second stage isn't in your mouth when you take this big breath, they say, you're going to end up with lungs full of water, which could quickly lead to a life-threatening situation.



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The puke-in-the-water school also argues from the point of safety: If you vomit into your second stage, the reasoning goes, you could clog it up and possibly render it useless.

One possible compromise is offered by the PADI *Rescue Diver Manual*, which recommends removing your regulator from your mouth but holding it at the corner of your mouth while pressing the purge button. This eliminates the possibility of clogging the regulator and reduces the chance that you'll inhale water. The problem is that most divers in this situation would find it difficult to remember this plan and to be able to execute it when they're about to toss their cookies.

Our recommendation is to choose the lesser of two evils by leaving the regulator in your mouth while you throw up. The possibility that you'll inhale water is simply too dangerous to risk removing your regulator.

So, you might ask, what about a clogged regulator? Isn't that just as dangerous? Well, no. The valve that delivers air to the second stage is a "downstream" valve, which means that it can't be clogged by anything you might be able to put into the second stage. Your recycled lunch will do nothing to hinder the supply of air.

The only regulator mechanism that you could clog is the non-return valve for the second stage exhaust. If this happens, water will seep back into the mouthpiece, but you will still be receiving air as well. Breathing this little bit of water is much less dangerous than sucking in a mouthful of water suddenly after you puke.

If you throw up through your regulator and the exhaust valve becomes stuck open, you can clear it simply by gently pushing the purge button. Anything that's stuck there will be flushed out.

### Breathless

**Q:** I found your recent article on free diving to be very informative and entertaining. However, I am interested in learning more about the subject of chest "contractions." I have been scuba diving since 1989 and recently started breath-holding exercises in my pool to prepare myself for ocean free-diving. I have got to where I can hold my

*breath comfortably for a minute and a half and I am shooting for at least three minutes before I try the ocean. At what point are you supposed to start the chest contractions? Is it at the four-minute point or is it different for each diver?*

BOBBY ATKINSON III  
 CHARLOTTE, N.C.

**A:** We turned this question over to free-diving coach Rudi Castineyra, who works with world-champion free diver Francisco "Pipin" Ferreras. Castineyra is also vice president of training for the International Association of Free Divers. He writes:

"First, you don't start the chest contractions; they happen on their own. They are an indication that the 'comfort zone' for you is over. After that, when contractions begin, you're just delaying the inevitable: come up for air. Learning to increase the time you can withstand contractions is a normal part of ecstatic apnea, but this is dangerous because

the line between the last bearable contraction and blackout is a very thin one. That's why you must always do these practices with a partner.

"There is no set time for the onset of contractions. Generally, in a relaxed and experienced

apneist, they start at three-quarters of your total time. So (and this is a broad generalization again), if you get the first contraction at a minute and a half, you shouldn't go past two minutes total time. At first, you might endure less than that.

"My suggestion is to increase the time you can go without contractions. You'll attain this by relaxing and properly ventilating before your apneas. Once you're down, clear your mind of any thoughts, and especially, don't keep track of the time—that'll kill you. So, good luck and remember our motto: it takes two to free dive, one down, one up. Look out for each other."

*Have a question about dive equipment, techniques, marine biology, physiology or anything else remotely related to scuba diving? Then ask RSD. Send your questions to: Ask RSD, 6600 Abercorn St., Suite 208, Savannah, GA 31405 or e-mail to: [RSDmgzn@aol.com](mailto:RSDmgzn@aol.com).*



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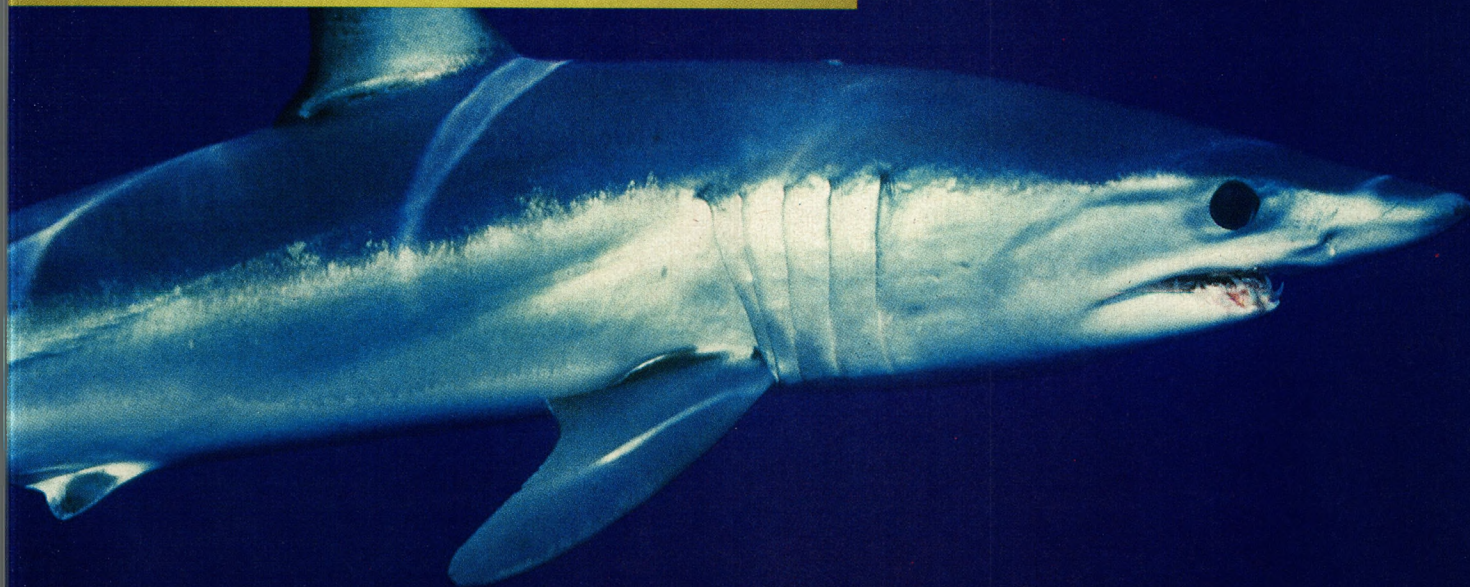
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# DIVE USA



A LONE MAKO STREAKS IN FROM THE DARK BLUE OFF CALIFORNIA'S ANACAPA ISLAND.

## CALIFORNIA

### Channel Islands

There are hundreds of rewarding dive sites in the Golden State's favorite offshore islands. Where to start? Right here ...

► by **JOHN FRANCIS**

**O**ur initiation to Southern California's Channel Islands began with a barely polite stampede for the gangway. Impatient tourists pushed bellies into backsides and baby strollers tangled wheels with Samsonites, but our heavy gear bags cleared a quick path off the ferry and into a familiar postcard view: Avalon Harbor on Santa Catalina Island.

#### ★ CATALINA ISLAND

With its hotels and bars, ice cream stands and T-shirt shops, Avalon's carnival atmosphere contrasts sharply with the remote solitude of these mostly untouched, unpopulated islands. Surprisingly, it also has some of the Channel Islands' best diving—the Avalon Underwater Park.

We entered the park in the shadow of the famous Casino. It's



a scramble over boulders, although stairs are supposed to be constructed this year. The one-acre park extends down the rocky slope of the Casino Point breakwater to a sand bottom at 30 to 60 feet, then out to a line of buoys that is meant to keep out boat traffic.

Taking of anything from the park is prohibited. As a result, large kelp bass, blacksmith, sheephead and the inevitable bright orange garibaldi are common, curious and unafraid. Cabezon and copper rockfish hang out among the rocks, ignoring divers. Wrecks include the *Sue Jac*, a 70-foot sailboat, as well as several smaller boats, an automobile, pier wreckage, tires and assorted junk—all of it now home to lobster, eels and octopus. Divers looking for the kelp experience will normally find a healthy stand of it on the east side of the park, with plenty of blue-gray opaleyes

MAP: ANN GEISINGER; PHOTO: RANDY HARWOOD/EARTHWATER



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and orange señoritas drifting among the fronds.

A unique feature of the park is a scuba trail set up on about 10 Saturdays in the summer. Volunteers from Catalina Conservancy Divers plant name tags next to 20 or so plants and invertebrates—all you have to do is swim and read.

Charter boat trips leave Avalon to other Catalina dive sites, such as:

► **Ship Rock, Bird Rock and Harbor Reef.** All are in and around Isthmus Cove, about 10 miles west of Avalon. Novice divers explore shallow reefs and ledges thick with

kelp, anemones, gorgonians and corals. Advanced divers find more of the same covering sheer walls dropping beyond 130 feet.

► **Blue Cavern Point.** Steep drop-offs and occasionally strong currents can make this a challenge for novice divers, but the payoff is a rainbow patchwork of sea stars, anemones, corals and sponges, plus the largest sea cave on Catalina.

## ★ SANTA BARBARA ISLAND

One of the largest sea lion rookeries in California is located on this postage-stamp-sized island. A popular and easy dive over a sand bottom at 20 to 30 feet, Santa Barbara gives you a unique opportunity to star in your own Sea World show.

Most of the time, sea lions are curious and playful. However, pregnant cows can be irritable, mothers are protective of young pups and the big bulls act like, well, big bulls. All have been known to bite, so look but don't even try to touch. Let them take the initiative. The best time to visit the sea lion rookery is mid-summer to fall, when mating and birthing is over, pups have become energetic adolescents and most bulls have left for their winter homes.

Our visit was on a warm August afternoon. As one diver after another stepped over the side of the boat, dozens of sea lions launched to investigate, bark-



WITH AN ADVENTURESOME PALATE, THIS ORANGE GARIBALDI MAKES A QUICK SNACK OF A SEEMINGLY INEDIBLE URCHIN.

NORBERT WU

ing and splashing. They were among us instantly, spinning doughnuts, blowing bubbles, playing “chicken,” nipping our fins and generally acting like puppies eager to play. Never will you feel so clumsy, so encumbered by rubber and hardware, as when a pup shoots under your armpit, nibbles the corner of your BC and then disappears almost before you realize what is happening.

But there's more to Santa Barbara Island than sea lions. Extensive reef and rock structures, usually thick with kelp, surround most of the island. Other sites include:

► **Southeast Reef.** Just off the southeast tip of the island is a complex of ledges, arches and drop-offs sloping from 25 feet out to the sand bottom at 100 feet. Kelp is usually thick at Southeast Reef, and purple urchins, anemones and nudibranchs cover much of the rock surface.

► **Sutil Island.** Barely more than a rock a few hundred feet off the southwest side of Santa Barbara Island, this island is penetrated by submarine caves. Depths range from 20 feet in the area between the two islands, to 130 feet and more on the west and north sides of Sutil.

## ★ ANACAPA ISLAND

Along the northeast coast of Anacapa Island we found another kind of aquari-



um show. About a mile of the shoreline from the surface down to 60 feet is a marine sanctuary—no hunting or taking allowed—and the fish know it. Untouchable scallop and lobster can grow big and juicy here. Prime game fish like bass and sheephead drift past your nose with the insolent aplomb of a cat on a high fence.

Most of the sanctuary is a thick kelp forest, allowing us to see this complex ecosystem practically unaffected by human impact. We descended outside the forest in order to approach it from below.

Between rootlike structures of kelp holdfasts was a thick carpet of purple and red algae, red and white anemones, Spanish shawl nudibranchs, spiny sea urchins, feathery orange gorgonians—all feeding on drifting plankton, falling scraps of kelp or one another in a silent, slow-motion free-for-all.

Swimming through natural trails and clearings in the forest are fish specifically adapted to the kelp. Opaleye perch eat the fronds. Kelp bass mimic the fronds in shape and coloration to hide from predators and prey alike. Señoritas nibble on the bryozoans which encrust older kelp fronds. Norris' top snail spends its life climbing the kelp and grazing on it. When it reaches the end of a frond, it falls off, drops to the bottom and, like Sisyphus, begins to climb again.

At the top of the forest the fronds have spread into a thick mat, filtering sunlight to an amber-colored shade. Harbor seals and sea lions often rest on the floating kelp mats. Along with jacks and sharks, they hunt along the edges of the kelp and in the clearings. All told, some 800 species of animals and 150 species of plants are estimated to live, directly or indirectly, on the kelp.

Other Anacapa Island dive sites are only a few minutes away by boat.

► **The Goldfish Bowl.** At the northwest corner of Anacapa, Goldfish Bowl is a sandy clearing in the kelp where fish of all kinds congregate.

► **Parallel Reefs.** On the south side of Anacapa, three parallel reefs at 30, 50 and 90 feet all have moderate kelp coverage. Just inshore is **Cat Rock** with a series of rock shelves at only 20 feet, making it a good novice or end-of-day dive.

## ★ SANTA CRUZ ISLAND

Moving west from Anacapa, we end our expedition with another shore dive. Scorpion Landing at the east end of Santa Cruz Island offers the only camping/diving site in the northern Channel Islands where, incredibly, camping is free.

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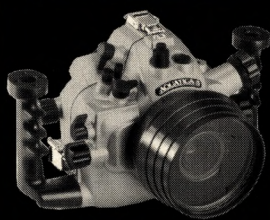
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MARCH • 35



That's all the good news about the campground. It is a long hike from the pebble beach where Island Packer Cruises or Truth Aquatics dumps your gear. You have to bring your own water and pack out your trash. There are pit toilets only.

But the diving is worth the work. Scorpion Landing usually offers the best visibility on the island and little or no surge. Within a few hundred feet of the beach we found several small reefs curving eastward toward a large rock near shore. This rock, the reefs and various smaller

outcrops in between were surrounded by kelp. The rocks are broken and jagged, forming crevices, ledges and small caves, which are habitat for urchins, nudibranchs, sea stars and anemones. Between the rocky outcrops, we saw bat rays sleeping in the sand and gliding over the bottom. Calico bass and opaleye perch peek from the kelp, raising the prospect of fresh fish grilling over the campfire.

The reefs and rocks close to the beach are in 20 feet of water or less, so snorkeling is attractive—a good thing,



THE CHANNEL ISLANDS' RICH INVERTEBRATE MARINE LIFE INCLUDES NUDIBRANCHS, ANEMONES AND SUN STARS LIKE THE ONE PICTURED HERE.

RANDY HARWOOD / EARTHWATER STOCK

since Island Packer will transport only two tanks per diver. A kayak will let you explore around the large rock to the east and Little Scorpion Cove beyond it. Just in front of Scorpion Landing, in 60 feet of water, is the wooden wreck of a U.S. Navy minesweeper, the *USS Peacock*.

Other easy or moderate dives at Santa Cruz include:

► **Yellow Banks.** Offshore from its namesake yellow cliff is a square mile of shallow, rocky bottom studded with outcrops and reefs and normally covered with kelp. The rock is carved into fissures, canyons and ridges. Sandy patches make sunlit clearings in the kelp overhead. Depth ranges from 30 to 80 feet.

► **Gull Island.** About a mile south of Santa Cruz, a barren rock breaks the surface. Surrounding it, and connecting it to Santa Cruz, is a large reef system. A series of ledges and walls stairsteps from 30 feet down to over 100. Encounters with sea lions and large pelagic fish are not uncommon.

## ★ BEYOND THE BASICS

There are dozens more dive sites on these four islands, and even more on the four more remote Channel Islands of San Clemente, San Nicolas, Santa Rosa and San Miguel. In addition, there are offshore seamounts like Farnsworth Banks, Cortes Banks and Begg Rock.

At all these sites, expect stronger current and swells, colder water and more exposure to bad weather than the sites we surveyed. Like Topsy, when



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# Channel Islands Dive In



## Water Conditions

Channel Islands visibility ranges from 20 feet to over 100 feet, with the best vis off the protected lee sides of islands. Visibility is generally best in the late summer and fall. Spring plankton blooms can substantially reduce visibility. Water temperatures at the surface range from the low 50Fs in spring to the low 70Fs in late summer, so full exposure protection is required year-round.



## Dive Drills

Most Channel Islands diving is from 50- to 85-foot dive boats carrying up to 35 divers, although there are a few six-pack boats. The large boats generally offer air fills, hot food and bunks, and one even offers a hot tub. The two- to four-hour crossing of the channel can be rough, but dive sites themselves are usually much calmer.



## Operators

### Northern Channel Islands

Anacapa, Santa Cruz, Santa Rosa and San Miguel are mostly served by boats from Santa Barbara, Ventura and Channel Islands Harbor (Oxnard). Call LIBERTY (805-642-6655), SPECTRE (805-483-6612), PEACE (805-658-8286), TRUTH, CONCEPTION and VISION (805-962-1127), CHIEFTAIN (805-340-7185), and SEA VENTURES (805-650-9523).

### Southern Island Group

Santa Catalina, Santa Barbara, San Clemente & San Nicolas. Call ATLANTIS (562-592-1154), ENCORE (310-541-1025), GREAT ESCAPE (714-828-9157), MR. C (310-521-9737), SUNDIVER (800-555-9446), GOLDEN DOUBLOON (714-963-4378), HORIZON and OCEAN ODYSSEY (619-277-7823), and LOIS ANN (800-201-4381).

Catalina Island is also home to several dive stores and charter services including ARGO DIVING SERVICES (310-510-2208), CATALINA DIVERS SUPPLY (800-353-0330), CATALINA SCUBA LUV (800-262-DIVE) and WEST END DIVE CENTER (800-785-8425).



## For More Info

Call Avalon Visitors Bureau (310-510-1520); Channel Islands National Park (805-658-5730); and Island Packer Cruises (805-642-1393).



## Just In Case

A hyperbaric chamber is located at Big Fisherman Cove on Santa Catalina Island (310-510-1053).

they're good they're very, very good and when they're bad they can be awful.

Up for a challenge? We suggest:

► Northwest Harbor, San Clemente Island: Wrecks of the 308-foot destroyer escort *Butler* at 70 feet and the tugboat *Koka* at 25 feet, among others.

► The Boilers, San Nicolas Island: A rocky area at the windward end of San Nicolas ranges from 80 feet to near the surface. Famous for game taking.

► Begg Rock: Eight miles west of San Nicolas, the underwater terrain around

this isolated rock includes deep ledges and drop-offs to over 200 feet.

► Johnson's Lee, Santa Rosa Island: This sheltered cove behind South Point offers good visibility, lots of kelp, plenty of invertebrate life and a few game fish.

► Richardson Rock, San Miguel Island: Sheer walls drop to 130 feet or more with often excellent visibility. ☉

RSD Field Editor John Francis lives on his boat in Ventura, Calif., and dives the Channel Islands every chance he gets.

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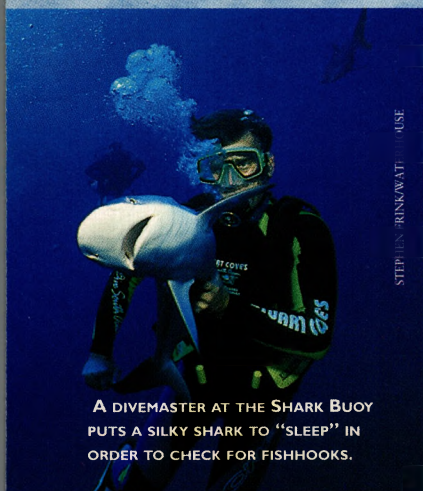


PALAU TRUK FIJI SOLOMON ISLANDS BELIZE BAY ISLANDS COZUMEL COSTA RICA



I came to the Bahamas in search of adventure, and in the middle of a swirling vortex of 20 Caribbean reef sharks, I found it. Actually, it found me—right across the face. Halfway through my Shark Suit Adventure I got a little cocky. Feeling safe and invincible inside 22 pounds of chain-mail shark suit, I turned away from the bait bucket to pet a passing shark's soft white belly when another of the hungry fish collided with my head, flooding my mask before I could even blink.

It was an accidental collision (I'm pretty sure of that, though a hungry shark can be a resourceful animal) and it took only a moment to find my mask on the side of my face. I cleared it, gave Tim—my supervising instructor—an OK sign, then went back to feeding with a



STEPHEN RINKWAT / USE

A DIVEMASTER AT THE SHARK BUOY PUTS A SILKY SHARK TO "SLEEP" IN ORDER TO CHECK FOR FISHHOOKS.

BRANDON COLE

# Bahamas

**If you dream of buzzing a shipwreck on a rebreather while riding a DPV amid schooling sharks and dolphins, then check out...**

## The Home



new measure of respect for my power lunch companions.

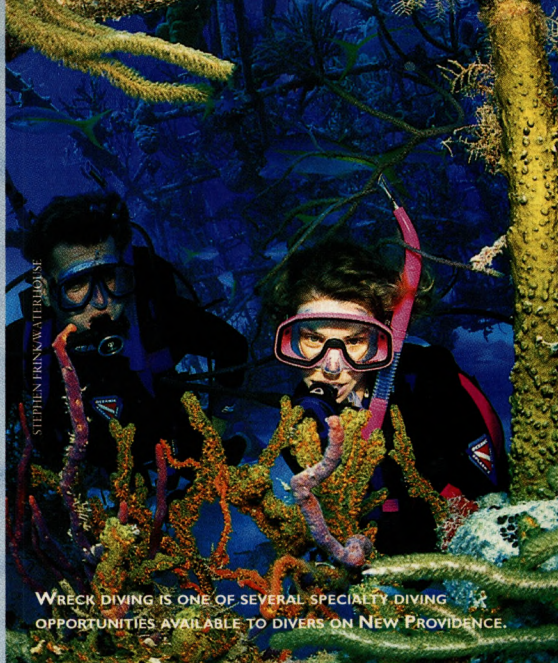
## NAME YOUR ADVENTURE

Shark suit diving is just one of the “adventure diving” programs offered in the Bahamas, the island nation that gave birth to the idea that recreational diving doesn’t always have to mean staring at pretty fishies. Is your dive fantasy to buzz a shipwreck teetering on the edge of a deep blue hole while flying a diver propulsion vehicle (DPV) and using a rebreather amid schooling sharks and dolphins? No problem. A growing number of Bahamas dive

operators  
offer a menu

of specialty and novelty dives on top of the already-famous reefs and walls.

**BY KEITH PHILLIPS**



# WALLS of Specialty Diving



# The Bahamas

## WARM WATER, COLD FEAR: SPECIALTY DIVING WITH SHARKS

Shark diving began off Long Island, Bahamas, in 1973, when somebody thought it'd be neat to use fish scraps to lure in normally shy Caribbean reef sharks so that divers could get a closer look. The idea caught on in a big way, and the practice has spread throughout the Bahamas. More than 100,000 divers have safely participated in shark feeding dives with land-based operators on Grand Bahama, New Providence, Long Island and Walker's Cay, as well as from live-aboards cruising the islands.

There are three variations on shark diving to suit any diver's (dis)comfort level.

## DINNER IS SERVED: TRADITIONAL SHARK FEEDING DIVES

While every operation has its own style, most shark feeding dives work like this: Guests kneel on a shallow sand bottom and watch from 10 feet away as a trained divemaster feeds sharks by hand, from the end of a pole spear or via bait suspended in the water.

**The Drill:** Sign the multi-page waiver and pay attention to the dive briefing. The rest is easy: just sit there and try not to look

like shark bait.

**Tips & Techniques:** You'll need to add two to four pounds of lead to your weight belt for the feeding dive in order to stay firmly anchored to the bottom.

► Keep your hands tucked into a BC pocket or folded over your chest. Clip gauges to your chest where you can check them with minimal hand motions.

► Look but don't touch. The sharks will generally ignore you since you don't smell or look like food, but as they circle the feeder, they are likely to soar over your head or in front of you. It will be very tempting to reach out and pet them.

Don't. The shark you're trying to pet won't get you, but the one you haven't seen yet just might mistake your hand for bait.

► For a more natural shark encounter, some operators begin with a regular reef dive near the feeding site as the sharks are gathering.

## NICE SUIT: ADVENTURES IN CHAIN MAIL

Imagine you're the ball inside a rugby scrum. That's what it can feel like to stare up into the expectant faces of a swarm of Caribbean reef sharks when you've placed your body between them and their lunch. Thank God for chain mail.

If watching somebody else feed sharks isn't exciting enough, put yourself in the middle of the action through a shark-feeder program. These specialty dives allow guests to don the chain mail and feed the sharks under a divemaster's supervision. Offered by only a few operations on New Providence and Grand Bahama, they range from half-day programs to intensive four-day series of dives and educational seminars.

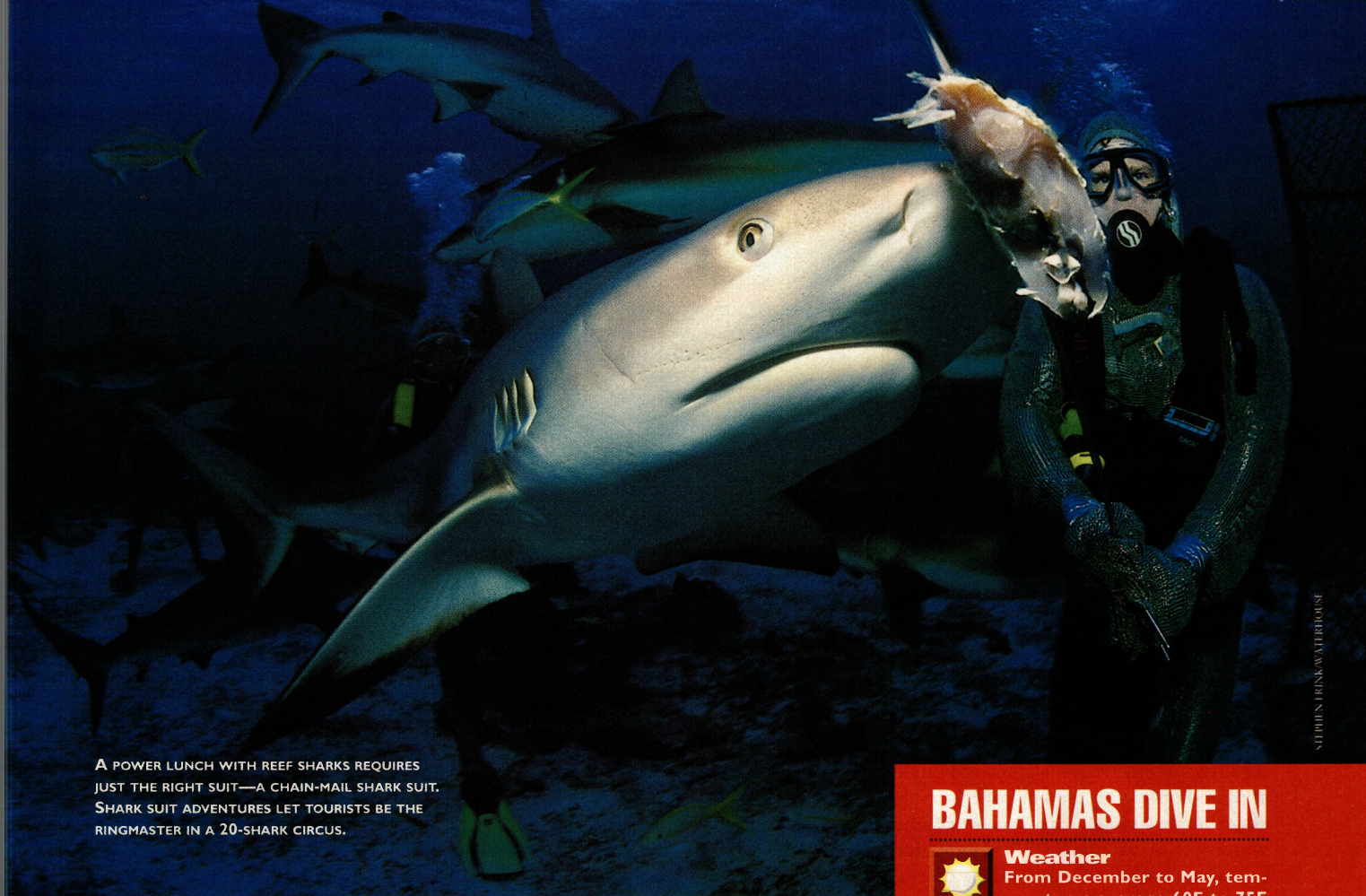
**The Drill:** Gearing up in a chain-mail shark suit feels like suiting up for a football game. First you put on a full wetsuit, boots and gloves. Then you don a 22-pound chain-mail suit to protect you from stray bites. Tighten the Velcro straps, tape off the wrists and ankles, and you're ready to rumble with reef sharks.

**Tips & Techniques:** It's important to get comfy with the gear. If you can't handle wearing 22 pounds of steel in the pool or on a shallow reef dive, you won't be comfortable when the sharks are swarming you like a pack of killer bees. You'll have to pass a skills test that shows you're comfortable clearing your mask and recovering your regulator (sometimes both at the same time) while weighted down inside the suit. As I found out, it's not just an academic exercise.

► Timing is everything. In order to control the pace of the feeding, you'll learn how to pick out a specific shark, how to lead it with the bait and when to release the food.

► You can pet the sharks—the larger females in particular seem to enjoy it—just don't manhandle them. Expect to get bumped a few times. Even animals as graceful as sharks get clumsy when their attention is focused on food.





A POWER LUNCH WITH REEF SHARKS REQUIRES JUST THE RIGHT SUIT—A CHAIN-MAIL SHARK SUIT. SHARK SUIT ADVENTURES LET TOURISTS BE THE RINGMASTER IN A 20-SHARK CIRCUS.

## SILKY SMOOTH: THE SHARK BUOY

Fearless, aggressive and curious—if not for its miniature size, the silky shark staring me in the face would scare me straight out of the water. Instead, the intense nose-to-mask staring contest seems kind of humorous. The small shark is only a little over two feet long, and it looks more like a pet than a predator.

Don't be fooled. These small pelagics are far more assertive than their larger reef cousins and they aren't used to seeing divers. They'll bump your fins, sniff dangling gauges and swim right up to your mask. They aren't out to hurt you, but never forget that they can.

**The Drill:** It's a 10-mile run from the south side of New Providence or from Andros to the AUTECH Buoy anchored in the two-mile-deep Tongue of the Ocean. The lonely buoy attracts everything pelagic so you might also see anything from whale sharks to billfish.

The divemaster will carry a small amount of bait and chum it periodically to keep the attention of the silky sharks hanging out beneath the buoy.

**Tips & Techniques:** The buoy is located in 8,500 feet of water and there is

little in the way of visual depth indicators, so keep an eye on your gauges. To encounter the sharks, there's usually no reason to go deeper than 50 feet.

► The open-ocean location also means that water conditions are highly variable. Be prepared for strong currents.

► If you're quick, you can reach out and feel the smooth skin that gives these sharks their name (just be careful not to get too close to their mouths). Divemasters will demonstrate how they can twist the sharks' tails and put them temporarily to sleep—a trick they use to remove fishhooks.

## THEY BLOW. THEY SUCK. THEY'RE COOL SPECIALTY: BLUE HOLES

The experience of swimming through these cathedrals of rock, water and sunlight borders on the religious for any open-water diver with a jones for caves. Blue holes are, in fact, vertical caves in the ocean floor or the underlying limestone of an island that form when geological forces eat away at the porous rock. You'll find them scattered all across the Bahamas, and diving them is a specialty offered by live-aboards and operators on Andros, New Providence, the Exumas, Harbour Island and the Abacos.

## BAHAMAS DIVE IN



### Weather

From December to May, temperatures average 60F to 75F while summer temps average 80F to 85F. During winter, the islands are susceptible to storm fronts that usually blow through in a few days. Summer brings the calmest weather conditions.



### Water Temperature

Winter water temps stay in the 70Fs while summer temps peak in the high 80Fs.



### Visibility

With no runoff to cloud the water, visibility is usually a consistent 100 feet or more.



### Money Matters

The Bahamian dollar is equal in value to the U.S. dollar and the two are used interchangeably. Credit cards and traveler's checks are accepted by most hotels and dive shops.



### Entry Requirements

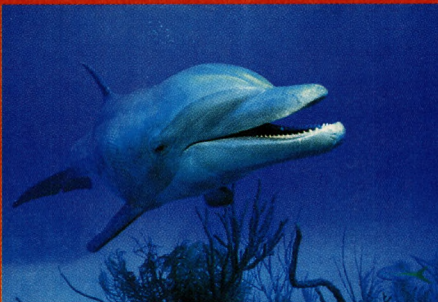
U.S. residents need proof of citizenship such as a passport or a birth certificate and driver's license. There is a \$15 departure tax.



### For More Information

Call the Bahamas Diving Association at (800) 866-DIVE or see their site on the web at [www.bahamasdiving.com](http://www.bahamasdiving.com). The Bahamas Ministry of Tourism has offices in several U.S. and Canadian cities: Atlanta (800-422-4262), Chicago (773-693-1111), Dallas (214-742-1886), Los Angeles (213-385-0033), New York (212-758-2777) and Toronto (416-968-2999). The Out Islands Promotion Board, (800) 688-4752 or (954) 359-8099, has information on the smaller Bahamas islands.





(Left) Rock opera: The dramatic rock formations of Ben's Cave, like this glowing crystal column, captivate divers. (Above) A specially trained bottlenose dolphin mugs for the camera between sessions with divers. (Right) A divemaster hand-feeds a shark off New Providence. (Facing page, left) Check your six: Top Gun divers flying Clifton Wall. (Facing, top center) Wreck or reef? Sometimes it's hard to tell on the *Bimini Barge*. (Facing, center bottom) High-tech wreck check: Diving the *Will Laurie* on a semi-closed-circuit nitrox rebreather. (Facing, right) Shipwrecks in the Bahamas quickly become encrusted with colorful sponges.



PHOTOS BY STEPHEN FRANKWATERHOUSE

While blue holes are generally safe for divers of any skill level, they should be explored only with the help of a knowledgeable dive guide. They can work like water jets or vacuums—blowing water out or sucking it in—depending on the whims of nature. Many connect to horizontal caves that should not be attempted by open-water divers.

**The Drill:** Diving ocean blue holes like Ocean Blue Hole off New Providence, Big Blue Hole off Andros, Angelfish Blue Hole off Great Exuma, and the Blue Hole off Cat Island is just like any other boat dive. Just follow the divemaster's instructions and don't penetrate past ambient light.

Inland blue holes are a different story. You'll load up in a van, drive to the site and may have to haul your gear through the woods. Some caverns, like The Sink on Eleuthera, require you to lower your gear 30 feet into the hole by rope and rock climb out of the cavern when you're finished diving. Ben's Cave on Grand Bahama features a spiral staircase and wooden deck where you can suit up, while the water in Andros' Guardian Blue Hole comes right to the brim for easy entry.

**Tips & Techniques:** Inland blue holes tend to maintain water temperatures in the low 70Fs year-round, so extra neoprene is usually in order. While you're adjusting your gear, follow your divemaster's instructions for weighting. Some caverns are filled with fresh water, meaning you'll need less weight to sink.

► Some blue holes are filled with a very delicate, vis-destroying silt. You'll need to practice pinpoint buoyancy control and use a sideways kick to avoid stirring things up.

► Plan ahead. Some caverns like Ben's Cave are controlled by the government, and access is limited. Even in open caverns, these special trips take some organizing or require a minimum number of divers.

## SEA WORLD, ONLY BETTER SPECIALTY: DIVING WITH DOLPHINS

As we *oohed* and *aahed*, two trained dolphins followed us all the way to the reef site, somersaulting and cartwheeling in the boat's wake. That was only the beginning. Dolphin diving is about hands-on interaction.

In the dive briefing, the dolphin trainers teach you the appropriate hand signals for telling the dolphins what you want them to do. An extended open palm, for example, instructs the dolphins to push on your palm, spinning you 360 degrees in the water.

**The Drill:** Scuba dives with trained bottlenose dolphins are offered on Grand Bahama. Non-diving programs where you can swim with dolphins in their pens or be an "assistant trainer" for a day are offered on Grand Bahama and New Providence.

**Tips & Techniques:** Diving with trained dolphins is pretty simple—they do all the work. Trainers lead the dolphins from diver to diver. The hardest thing you have to do is patiently wait your turn to interact with them.

## WILD THINGS SPOTTED DOLPHIN ENCOUNTERS

Off Bimini and the shallows of the White Sand Ridge, you can also snorkel with wild spotted dolphins.

They won't perform tricks, and they stay just outside touching distance, but if you're interesting enough, the dolphins will amuse themselves by making a mockery of your swimming skills.

**The Drill:** The dolphins call the shots. All dive operators can do is let them know people are there and would like to play. With mask, fins and snorkel at the ready, you motor around in your boat until a friendly pod takes an interest in you. Then it's a scramble into the water for swimming encounters that last anywhere from a few minutes to a few hours.

**Tips & Techniques:** Book early. Live-aboards and land-based trips are often sold out well in advance of the popular summer months.

► Play nice. The dolphins will often swim close to you but will flee if you try to make unwanted contact.

► The secret to long encounters is keeping the dolphins amused. It helps to be a skilled swimmer and free diver in order to mimic their playful actions.

## LET'S GET TECHNICAL SPECIALTY: NITROX REBREATHERS

*Weird!* The sensations of diving on the Dräger Dolphin nitrox semi-closed-circuit rebreather were all strange.

I exhaled to the sound of ... nothing,





PHOTOS BY STEPHEN BRINKWATERHOUSE

and inhaled my own warm, moist, freshly scrubbed air now mixed with nitrox. Because the amount of air in the system—the combined air space of your lungs and the rebreather—remains relatively constant, you can't control buoyancy by breathing in and out. Then there are the different gauges and back-up regulators. It all takes some getting used to, but one thing's for sure: if you're looking for something different under water, you'll love rebreathers. (See "Rebreather Revolution," page 94.)

Recreational divers at a handful of New Providence shops can try this military-inspired form of diving either through intro courses or full certification classes.

**The Drill:** In the intro course, you learn just enough of the workings of the Dräger unit to use the device on an open-water dive conducted under an instructor's supervision. In the full certification course, you learn the entire maintenance and set-up routine. Four dives later, you should have the hang of using the unit, and you'll be certified to dive on your own.

**Tips & Techniques:** Any certified diver can take the introductory course. To take the full rebreather certification course, you must be a certified nitrox diver, though you can take the nitrox course along with the rebreather program. ► Don't forget to make two safety stops—the first one at 20 feet is made on the way down and gives you and your instructor the opportunity to make sure the units are functioning properly.

## CLEARED FOR TAKEOFF SPECIALTY: WALL FLYING

Tired of puttering along New Providence's Clifton Wall like a Yugo stuck in first gear while schools of arrogant creole wrasse whiz by you like Ferraris in over-drive? You need to go wall flying.

With an Apollo DPV, all it takes is the push of a button to run with the swiftest of reef fish and cover lots of terrain in a single dive. You'll be cruising at a fixed maximum speed of about two-and-a-half knots—not the Top Gun kind of speed you might expect, but enough to pull you through barrel rolls, loops and acrobatic turns.

**The Drill:** You're required to have at least 20 dives or hold an advanced open-water certification, but you can master the technical operations of flying a scooter in no time. After a 15-minute boat briefing and a shallow practice dive, it's off to buzz the wall and cover some serious ground. Expect to breeze past as many as five dive sites in the 30 minutes of run time you typically get from a battery. Getting back to the boat? No problem. It follows you.

**Tips & Techniques:** Streamline your gear and tie off loose straps and gear to improve your hydrodynamics and to keep loose gear from interfering with the prop—or slapping you in the face.

► Stash your octopus in a BC pocket. Sometimes the water pressure of rapid forward movement will cause your regulators to purge, wasting air.

## GO DOWN WITH THE SHIP SPECIALTY: WRECK DIVING

The Bahamas have been an active seaport since colonial days, and where ships sailed, they also sank. Each island has its share of ill-fated hulls at safe diving depths, some put there specifically for divers, others put there by fate.

**The Drill:** Wreck diving is like any other boat dive, though you will need to follow the dive guide's instructions about penetration. While you can safely swim through most Bahamas wrecks, older ships might be unstable.

New Providence's southwest wall offers some of the newest wreck dives in the Bahamas. A trio of retired Bahamian Defense Force cutters was put down in 1997 (a fourth was sunk in the Exumas), adding to the armada of popular wrecks that includes the *Bahama Mama*, the *Will Laurie* and the *Sea Viking*. On the north side of the island, *Shipyard* is a popular wreck site with no fewer than four sunken ships you can explore on a single dive.

Green Turtle Cay in the Abacos is the resting place of the *San Jacinto*, the first U.S. steamship. Long Island's *Comberbach* and Grand Bahama's *Theo's Wreck* both overlook drop-offs and are famous as picture-perfect wreck dives sunk intentionally for divers.

Bimini's *Sapona*, *Bimini Barge* and *Bimini Trader* satisfy many a diver's nutritional need for steel, as do Harbour Island's *Train Wreck* and *Carnavon*, and Andros' *Marion*. ☺



# Bahamas Advertiser Directory

## RESORTS/HOTELS

### Dive Dive Dive Ltd. (New Providence)

(800) 368-3483 or (242) 362-1143; fax (242) 362-1994  
• e-mail: info@divedivedive.com • internet: www.dive-divedive.com • Five waterside one-bedroom villas with complete kitchen, cable TV and VCR. Dive boat docks at villa door. Quiet, peaceful, small and friendly resort. • Best package, including diving: low season, \$310 to \$945; high season, \$370 to \$1,180.

### Small Hope Bay Lodge (Andros)

(800) 223-6961 or (242) 368-2013; fax (242) 368-2015  
• e-mail: SHBinfo@SmallHope.com • Internet: www.SmallHope.com • Twenty cottages (four of which are two-bedroom cottages for families), two beaches, 140 miles of reef and all-inclusive rates at casual family-run resort. Under same family ownership for 38 years, Small Hope is the first dive resort in the Bahamas and the only dive operation dedicated to the third-longest barrier reef in the world. No one knows the Andros barrier reef—with its walls and blue holes—better. • Packages: Accommodations, all meals and beverages, three dives a day, hotel taxes, service charges plus airport transfers, from \$165 to \$220 per night, all-inclusive. Non-dive packages, snorkeling packages, specialty dives and special rates for kids and teens also available.

### Stella Maris Resort Club (Long Island)

(800) 426-0466 or (954) 359-8236; fax (954) 359-8238  
• e-mail: longisl@ix.netcom.com • internet: www.stellamarisresort.com • Dives the northern end of Long Island and the Conception Island area, including Conception Wall, Stella Maris Ships Graveyard, Shark Reef, the Blue Hole and much more. Catering to discerning individuals and small groups, Stella Maris offers the finest personalized dive planning and uncompromised dive facilities in the southern Bahamas. • Best package for winter 1998: seven-night Scuba Inclusive includes round-trip flights between Nassau and Stella Maris, accommodations, three meals, all service charges and government tax, taxi to and from the hotel and airport, drink package and diving, \$1,649 per person, dbl. occ.

## DIVE OPERATORS

### Abaco Beach Resort Dive Centre (Marsh Harbour, Abaco)

(888) 335-2754 or (242) 367-4646 (tel. and fax) • e-mail: info@greatabaco.com • internet: www.greatabaco.com • Dives reefs, wrecks, caves and blue holes of Abaco and offers nitrox. Has a fast custom dive boat and is a Scubapro, Dive-Rite and Uwaterc dealer. The only full-service dive operation and the only nitrox facility (diving and certification) in Abaco. • Best package: seven days, six nights, luxury hotel with breakfast, four days diving, \$1,750 per couple.

### Bimini Undersea (Bimini)

(800) 348-4644 or (305) 653-5572; fax (305) 652-9148  
• e-mail: info@biminiundersea.com • internet: www.biminiundersea.com • Bimini's only full-service scuba diving and watersports facility. The Bahamas most diverse diving featuring exquisite reefs, numerous wrecks and incredible walls. Bimini Undersea is also the home to the Bahamas' newest and most exciting adventure, Nowdla Keefe's Wild Dolphin Excursions. Give us a call or visit our web site.

### Peace and Plenty (Exuma)

(800) 525-2210; fax (242) 336-2093 • internet: www.peaceandplenty.com • Dives Exuma and surrounding waters. Newest and only resort dedicated dive operation. Service in English, French and Spanish.

### Chub Cay Undersea Adventures (Chub Cay, Berry Islands)

(800) 327-8150 or (954) 462-3400; fax (954) 462-4100  
• e-mail: nealwatson@aol.com • internet: www.nealwatson.com/chub.htm • The only operation for 35 miles, Chub Cay dives walls on the Tongue of the Ocean and reefs and blue holes around Chub Cay. Shore diving available too. • Packages start as low as \$190.

### Dive Abaco (Marsh Harbour, Abaco)

(800) 247-5338; fax (242) 367-4779 • e-mail: dive.abaco@internetfl.com • internet: www.internetfl.com/abaco • Dives the world's third-longest barrier reef. Conducts buoyancy control workshops and offers personalized service. • Best package: 4 nights/3 days diving (including tanks and weights for two dives a day), hotel taxes included, \$384.

### Nassau Scuba Centre (New Providence Island)

(800) 805-5485, (888) 962-7728, (242) 362-1964; fax (242) 362-1198 • e-mail: dive@nassau-scuba-centre.com • internet: www.nassau-scuba-centre.com • Dives the wall at Tongue of the Ocean, the Arena shark dive, *Bahama Mama*, *Will Laurie* and James Bond shipwrecks, shallow reefs, Goulding Cay and Southwest Reef, Razorback, Hollywood Wall, Shark Bowl and Tunnel Wall. Rated as one of the Top 5 Best Dive Operators in the Atlantic/Caribbean region with straight "A's" in 1997. Shark dives and shark suit adventures, rebreathers, nitrox, friendly staff and best dive boats. • Best package: Beginning as low as \$303 for three nights, two days, two-tank dives, per person, dbl. occ.

### Stuart Cove's Dive South Ocean (Nassau, New Providence)

(800) 646-3333 or (954) 524-5755; fax (954) 524-5925  
• e-mail: scove1045@aol.com • internet: www.stuartcove.com • Dives southwest side of New Providence Island, including walls, wrecks, reefs and movie sets. Two-tank Shark Adventure dives daily, Wall Flying scooter dives and excursions to Out Islands. Rebreathers and nitrox available. Nassau's only full-service photo center, personalized videos, E-6 processing and cibachrome prints. Guest showers, restrooms, gear rinse and gear storage. • Best package: two nights, two dive days at South Ocean Golf & Beach Resort, \$327. Price good from April 13 to Dec. 23, 1998 (same price as 1997).

### UNEXSO (Grand Bahama Island)

(800) 992-3483; fax (954) 351-9740 • e-mail: info@unexso.com • internet: www.unexso.com • Unique complex includes retail dive store, photo/video center, eight custom dive boats, and Brass Helmet Restaurant. Sixteen instructors affiliated with NAUI, PADI, SSI and YMCA available for training and referrals. 10 to 12 single- and two-tank dives daily, including dolphin, shark and wreck dives. Hotel/dive packages starting at \$189.

### Valentine's Dive Center (Harbour Island)

(800) 383-6480 or (242) 333-2309 (tel. and fax) • e-mail: vdc@batelnet.bs • internet: www.valentinesdive.com • Dives all reefs and wrecks of northern Eleuthera, Harbour Island and Spanish Wells. Sites range from six to

140 feet. We are big-island equipped, small-island service. • Best package: four days, three nights, three dives a day, \$288, dbl. occ.

### Walker's Cay Undersea Adventures (Walker's Cay, Abaco)

(800) 513-5257 or (954) 462-3400; fax (954) 462-4100  
• e-mail: nealwatson@aol.com • Seven-time winner of *Rodale's Scuba Diving's Readers' Choice Awards*. Packages starting at \$360: 3 days/2 nights, including deluxe air-conditioned room, hotel taxes and gratuities, breakfast and dinner daily, 3 dives daily including complimentary arrival and departure dives (pending flight schedule and safety), and free shark dive.

## LIVE-ABOARDS

### Blackbeard's Cruises

(800) 327-9600 or (305) 888-1226; fax (305) 884-4214  
• e-mail: RSD@blackbeard-cruises.com • internet: www.blackbeard-cruises.com • Offers one 12-passenger live-aboard and three 22-passenger sail/dive live-aboards. Affordable scuba vacations in the Bahamas Out Islands. • Best package: \$699 per week, all-inclusive sail/dive adventure.

### Nekton Diving Cruises/Nekton Pilot

(800) 899-6753 or (954) 463-9324; fax (954) 463-8938  
• The *Nekton Pilot* is a luxury live-aboard dive vessel with a super-stable SWATH design, 15 cabins, private baths and showers, elevating dive platform, three itineraries to choose from, E-6 processing, 2,000-square-foot sundeck with jacuzzi. • Cost: from \$1,195 to \$1,495.

### Sea Fever Diving Cruises

(800) 443-3837 or (954) 202-5608; fax (954) 351-9740  
• e-mail: seafever@seafever.com • internet: www.seafever.com • This 90-foot live-aboard is the longest-operating one in the Bahamas. Seven cabins, 14 passengers. Owner operated. Dives Cay Sal Banks, Exumas, Grand Bahama, western Bahamas, Berry Islands. Nitrox on board, E-6 processing. • Best package: To Cay Sal Bank and southern Out Islands, \$1,299.

## DIVE TRAVEL SPECIALISTS

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• e-mail: etatours@aol.com • Air-inclusive packages for divers and non-divers. Packages for the Green Turtle Club located in the beautiful Abaco Islands start as low as \$499. Luxury cruising off the Exumas and Eleuthera, including diving and fishing, starting at \$995, all-inclusive.

### Waters Edge Scuba & Adventure Specialist

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## TOURISM

### Bahamas Diving Association

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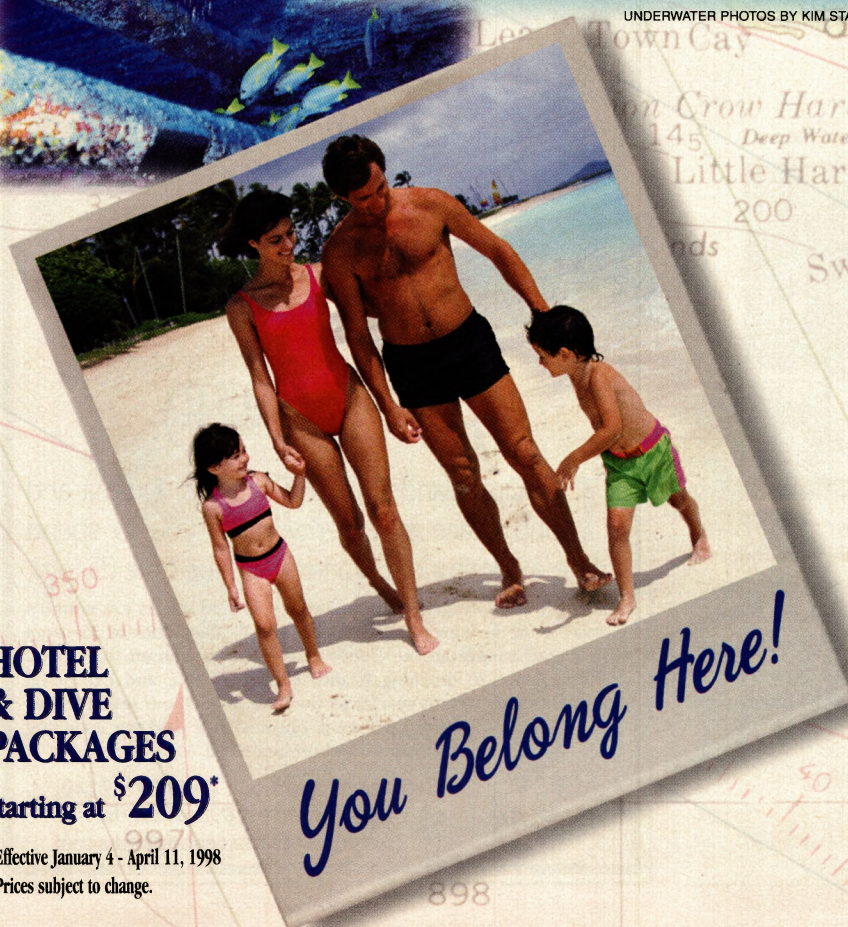
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### WALKER'S CAY



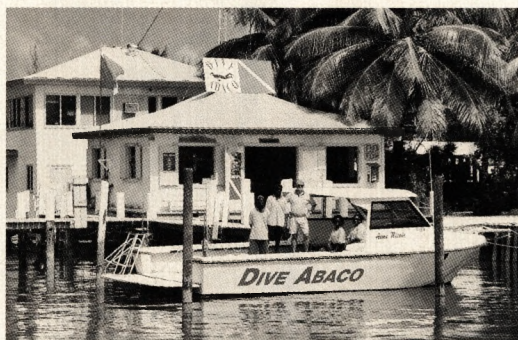
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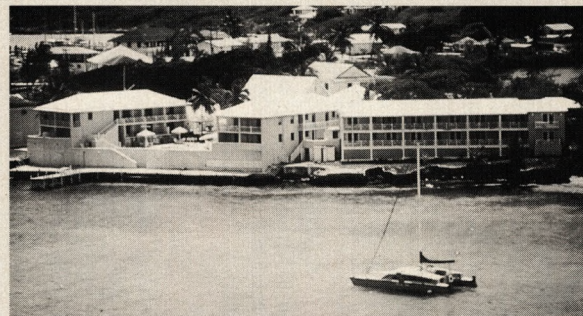


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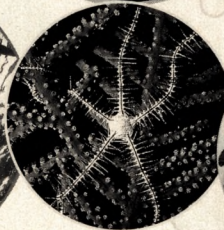
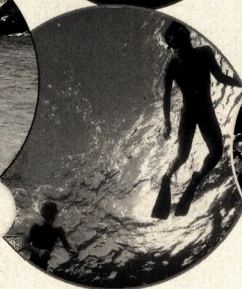
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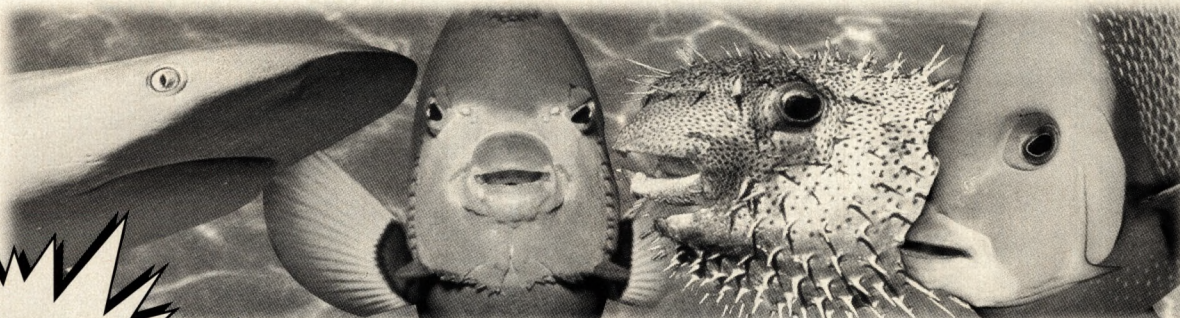
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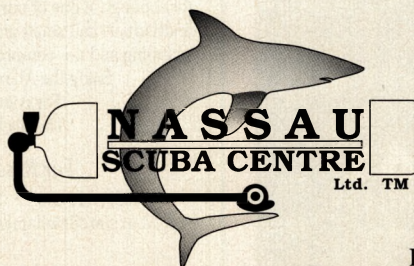
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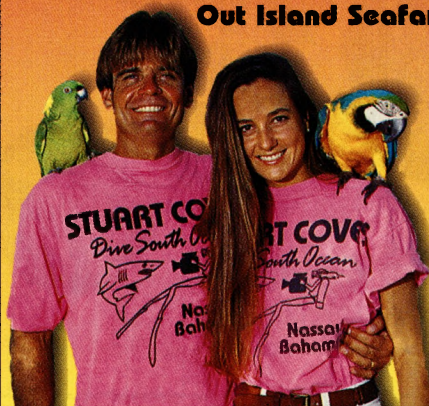


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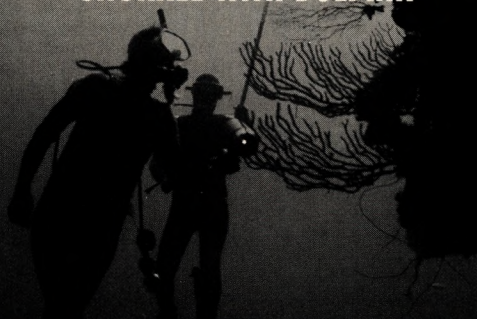


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L O N G I S L A N D B A H A M A S

CIRCLE NO. 6 ON READER SERVICE CARD



Plane ride? Sucked. Hotel? Worse. Diving? There was better visibility in the welcome cocktail. No problem. Here's how to survive and thrive even when the travel gods are against you. ► by **BOB FRIEL**

# How to Survive 20

# Dive Travel Disasters



Dive travel can be as simple as pouring gear and beer into the sport-ute and heading to a quarry, or as complex as hefting a compressor onto a llama and trekking across the Andes to a Patagonian ice pool. While most dive trips fall somewhere in the middle, trouble lurks anywhere and everywhere. Murphy just loves travelers.

Of course, the best way to handle a disaster is to avoid it entirely, or at least to be prepared to minimize its effects. The following tips will help you negotiate the obstacles that inevitably befall traveling divers. But remember this: come hell or high water, the worst disaster of all is being too scared to get off your butt and enrich your life by seeing this big world of ours.

## Disaster #1

### **The plane ride sucks.**

You're allergic to the live goats wandering the coach cabin, and your seatmate is a flatulent insomniac who entertains you through five time zones with tales of his extended family's epic battles with fungal infection. The goats could have been avoided. The seatmate's another story.

**Plan A** ► TAKE OUR ADVICE. Stick to airlines you've heard of. If you're flexible, avoid flying on notoriously heavy days, right before weekends and holidays. Try to book a seat in the emergen-



cy exit aisle to give yourself more legroom. If you're traveling with a buddy, book the window and aisle in the same row—the seat between you will be one of the last on the plane to be filled.

**Plan B ► KNOCK YOURSELF OUT.** Put yourself to sleep on long flights by any means available, short of boozing yourself into a stupor. Try exercising before the flight, drinking warm milk or taking melatonin. Accessories like silicone earplugs (two pairs of EarPlanes—advertised to allow pressure equalization while being worn—are available from Magellan's for \$9.85, (800) 962-4943 or [www.magellans.com](http://www.magellans.com)), a light-blocking mask (\$4.85 from Magellan's) and an inflatable neck pillow (\$9.85 from Magellan's). To combat jet lag, set a watch to destination time before you leave and start nudging your body into that time zone as far in advance as practical.

## Disaster #2

**Excess baggage fees: Having to pay for luggage after you've bought it.**

You're in transit to the Indian Ocean. You switch planes in Dubai, where some self-important airline flunky decides to charge you \$600 for an extra bag of dive gear that's flown with you no problem on three other carriers.

**Plan A ► KNOW YOUR LIMITS.** Call every airline you're flying to get their baggage limits—number and weight. On complicated itineraries, you can sometimes run into bottlenecks with commuter airlines that allow only a couple bags.

**Plan B ► PACK LIGHT.** When buying dive gear, think

## #5

**Plan D ► NEVER CHECK ...** medications, passports or any travel papers, money in any form, film, cameras, and anything you won't be able to buy or rent at your final destination.

## Disaster #3

**Your travel agent drops the ball—on your head.**

That expensive dive travel itinerary you bought from a one-armed guy named Stuey at Trailer Park Travel and Taxidermy starts to fall apart somewhere over the Pacific. Your \$86 Airfone call confirms that Stuey has lowered his wheels, packed his squirrels and left town.

**Plan A ► SHOP AROUND.** Find the best dive travel specialist for your trip. "Make sure the staff has actually been to the operation you're interested in," says Mike Herndon of Dive Tours. "That firsthand knowledge is key."

"Find out how many destinations each staff member specializes in," advises Bob Goddess of Tropical Adventures Travel. "More than four or five and they're spreading themselves too thin."

**Plan B ► ASK THE TRAVEL COMPANY IF THEY HAVE**

DIRECT CONTRACTS with the airlines

and hotels—this means they get bulk rates and will save you money over booking on your own. It also means they have the clout to help solve problems that arise on the road and can get you a refund if all goes to hell.

**Plan C ► ASK WHEN THEY LAST EVALUATED THE RESORT.** Legitimate dive travel wholesalers will drop resorts or even entire countries when they feel the standards have slipped.

**Plan D ► ASK FOR THE LOWDOWN.** A dive travel specialist should know very specific dive information—ask about the boats, number of divemasters, safety equipment and chamber access. If they don't know, either they haven't been there or they don't dive.

## Disaster #4

**You're in the right place at the wrong time.**

You—being a savvy dive traveler—plan to book a room for August, the middle of the traditional April 15 to Dec. 15 low season. To your dismay, guys with names like Günther and Björn have filled every resort room.

**Plan A ► KNOW WHEN TO SAY WHEN.**

"The 'season' has changed over the past few years," says Lisa Lardy of Miami Beach's Beach Travel. "Europeans now have the Caribbean sold-out in August and hotels have raised rates about 30 percent for that block—it's a mini high-season." Christmas, New Year's and Spring Break are also booked months ahead of time at rates double the low season price.

**Plan B ► THINK UNCONVENTIONALLY.**

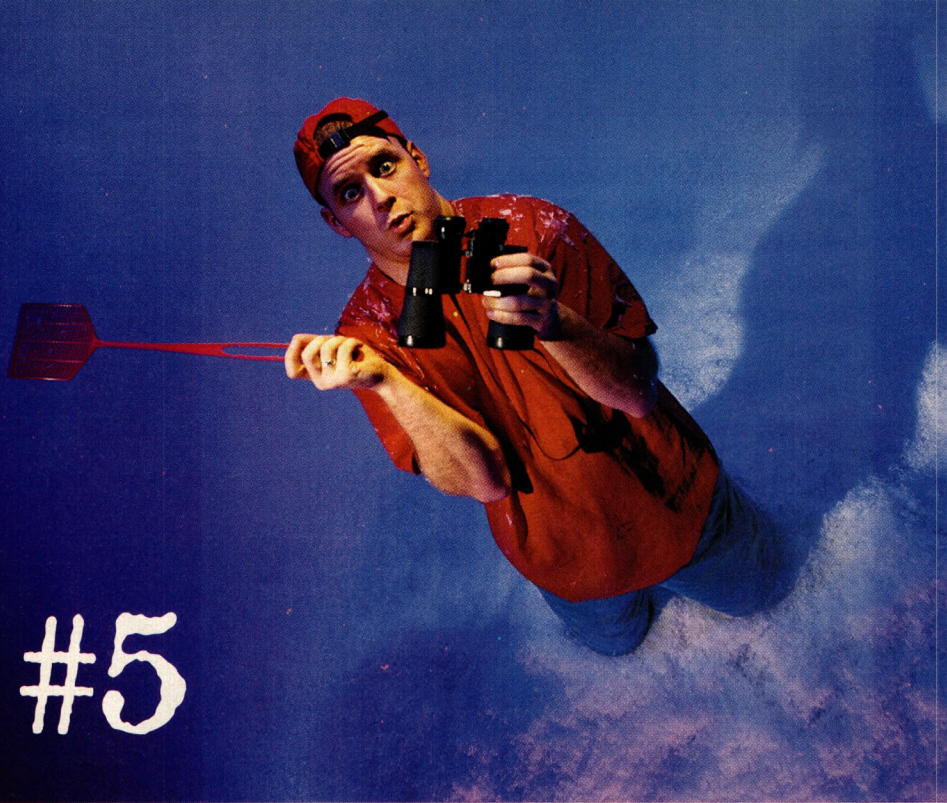
"For the best combination of low prices and great dive conditions throughout the Caribbean, personally, I'd go in May or June," Lardy says.

## Disaster #5

**You're in the wrong place at the wrong time.**

You're knee-deep in snow wearing just your Speedo, when the locals tell you, "Sorry, the right whales left a month ago." But hey, you're just in time for the biting flies!

**Plan ► BOOK LONG BEFORE YOU GO.** "Big animal" trips—great whites, whale sharks, whales—run on the critters' internal clock, and for a limited time only. Space is at a premium on expeditions and you must book early.



travel: low-profile

BCs and powerful compact lights.

Underwater photographers, if you're traveling with a non-photographer, share the allowance.

**Plan C ► CARRY ON, SOLDIER.** Airlines are getting ruthless about carry-ons, so check size limits. The FAA says 9" x 14" x 22", but some airlines differ.



"Prime trips book 80 to 100 percent full from six to 18 months ahead of time," says Goddess. "You should be booking 1999 right now."

## Disaster #6

### The hotel sucks.

When you try to check in, the hotel announces they're overbooked and offers you space at another resort, where the room has more bugs than a Mafia social club.

**Plan A** ▶ LET THEM WORRY ABOUT IT. In Nolo Press's *Trouble-Free Travel*, Stephen Colwell and Ann Shulman say, "If you have guaranteed reservations and the hotel doesn't hold a room for you, they've breached a contract and must do everything they can to find you a room—even if it means sending you to another hotel. If the alternate lodging is more expensive, the hotel should pay the difference."

**Plan B** ▶ SPEAK UP. If the new resort isn't acceptable and you booked with a travel agent/specialist, get them on the phone pronto. If you used a big wholesaler that does a lot of business with the resort, you're in good shape. If you booked on your own, get a manager and be firm but polite.

**Plan C** ▶ MOVE ON. Colwell and Shulman say, "If all negotiations fail and no acceptable solutions have been offered, consider giving up and moving on to a new hotel. By refusing to accept the problem, you strengthen your case for a refund when you get home."

## Disaster #7

### Trying to get from Point A to Point B. In one piece.

In all my journeys, I've been in two helicopter emergencies, two planes that "broke" upon landing, held at gunpoint three times, temporarily lost at sea twice and bitten by spiders, eels, a monkey and a shark. But ask any seasoned traveler, and they'll tell you that if you come home in a body bag, it'll be because of some idiotic taxi driver.

**Plan A** ▶ BUCKLE UP AND SPEAK OUT. Travelers are roughly 25 times more likely to die in an auto accident than from a disease, shark or bandito. In fact, road accidents are the leading cause of injury and death for overseas travelers. If you must cab it, find the biggest one and wear a seat belt. Don't be shy with your driver. Tell him that if he doesn't slow down, you're gonna throw up all over his air freshener.

**Plan B** ▶ STAY AWAY FROM TWO WHEELS. Scooters are cool, but they're agents of natural selection, keeping tourist populations in check. Do you ride one at home? Thought not. If you must scoot, always wear a helmet and your sturdiest pair of shoes.

**Plan C** ▶ WALK THE STRAIGHT AND NARROW. A similar number of travelers get killed or injured from drinking and walking... into oncoming traffic. Stay close to the designated thinker.

## Disaster #8

### You wreck the rental car.

You're careening down a lonely coastal high-

way, enjoying the crimson sunset, when a 2,000-pound yak saunters onto the road.

**Plan A** ▶ MAKE SURE YOU'RE COVERED BACK HOME. The CDW (collision damage waiver) insurance that rental companies push on you when you rent a car is often a \$10-a-day rip-off. It duplicates coverage under your own auto insurance and the temporary policy you get when renting with some credit cards.

**Plan B** ▶ MAKE THE CALL. Phone your insurer to see if coverage is good where you're going. Also, call your credit card companies to find which one has the best rental benefits and what the exclusions are. Some don't cover certain countries or types of vehicles.

**Plan C** ▶ TAKE RESPONSIBILITY. Remember, these insurances only cover damage to the car you're driving. You'll be liable for other cars, other people and livestock. Make sure you've got enough liability coverage (consider adding on a million-dollar blanket policy) and that it'll follow you in your travels.

## Disaster #9

### You take an unscheduled tour of the local hospital.

Regaining consciousness under a rusty, corrugated tin roof you hear, "OK, ready now for operate, Mistah. OK, now soon no problem, you bet. OK, bite stick now, big, big hurt."

**Plan A** ▶ BE READY TO SHELL OUT. Many health policies cover you abroad, but if you're treated in a foreign hospital or voodoo clinic, they'll probably want payment on the spot. Have a credit card with enough room on it for emergencies, and always carry claim forms from your insurance company.

**Plan B** ▶ THINK ABOUT PAYBACK. Have the hospital fill out all forms completely so you can recoup your money later. As with other insurance, it's best to have what they cover in writing for where you're going and what you're doing.

**Plan C** ▶ GET OUTTA THERE. To get the care you need, you might have to go elsewhere. Buy evacuation insurance (see "Know Before You Blow") that'll cover you for any reason, like TravelAssist, which comes free with Divers Alert Network (DAN) membership. Evacuation coverage is included with some cancellation/interruption insurance. Some credit cards even include it as a member benefit.

## Disaster #10

### You pick up a few germs.

Some of the best advice to avoid getting sick in exotic destinations comes from your mother. And if you won't listen to yours, listen to mine, who just happens to be an infection control nurse for the state of Pennsylvania.

**Plan A** ▶ WASH 'EM. How many times does Carol Friel, R.N., have to tell you to wash your hands? "In a developing country where hygiene is questionable, bring antibacterial soap and wash your hands thoroughly, espe-

cially before meals. 'Towelettes' packaged in an alkaline solution work well when water's not available. And it's very important to dry your hands as carefully as you wash them—the pathogens thrive on moisture."

**Plan B** ▶ DON'T LICK YOUR WOUNDS.

"Bring Betadine wipes to immediately clean skin injuries and an antibiotic ointment to cover them. Be careful to cover any breaks in your skin with ointment before washing or showering in questionable water." Also, make sure your tetanus booster is up-to-date (every 10 years).

## Disaster #11

### Garbage in, garbage out takes on a new meaning.

Somehow a nasty bug has crawled past your immune system to provide you with what travel writer Paul Theroux poetically calls a "bowel-shattering experience."



### Plan A

▶ PUT A CORK IN IT. Imodium (also known as chemical cork) works well on the symptoms but, according to an exhaustive chapter on "diarrhea and intestinal infections" in Dr. Richard Dawood's *Traveler's Health* (Random House, \$18, available through web site: [www.randomhouse.com](http://www.randomhouse.com)), "should not be used in persons with fever or dysentery because it will make the illness worse."

**Plan B** ▶ THINK BEFORE YOU DRINK. Drink only bottled water that you're sure has been packaged safely and opened in front of you. Carbonated drinks are slightly acidic and safer, but remember to wipe and dry the lips of cans and tops of bottles. Don't use ice—place beverage containers into a bowl of ice if you want to drink them cold. Boil questionable water for at least 10 minutes, or use commercially available iodine treatments (Potable Aqua, \$6.99 for 50 tablets through a Campmor catalog, (800) CAMP-MOR or [www.campmor.com](http://www.campmor.com), or a local sporting goods or camping store). Brush your teeth with bottled water and don't sing in the shower—you might accidentally drink the



## Know Before You Blow

**B**enjamin Franklin once wrote that an ounce of prevention is worth a pound of cure, and he didn't even have a phone, fax or internet access. The following resources will make light work of your dive travel planning:

### Weather

#### ► America Online

INTERNET: America Online at keyword "International Weather"

#### ► CNN

INTERNET: [www.cnn.com](http://www.cnn.com)

#### ► The Weather Channel

INTERNET: [www.weather.com/weather/int/](http://www.weather.com/weather/int/)

#### ► USA Today

INTERNET:

[www.usatoday.com/weather/wfront](http://www.usatoday.com/weather/wfront)

#### ► Yahoo

INTERNET: [weather.yahoo.com/index.html](http://weather.yahoo.com/index.html)

### Health and Safety

#### ► American Society of Tropical Medicine & Hygiene

INTERNET: [medinfo.dom.uab.edu/geomed/acctmth\\_dir\\_names.html](http://medinfo.dom.uab.edu/geomed/acctmth_dir_names.html)

A list of recommended specialists throughout the United States

#### ► Armchair World

INTERNET: [www.armchair.com](http://www.armchair.com)

Great online collection of travel advice

#### ► Centers for Disease Control, (404) 639-3311

AUTOMATED FAX INFORMATION SERVICE: (404) 332-4565 (This is a really nice feature)

INTERNET: [www.cdc.gov/travel/travel.html](http://www.cdc.gov/travel/travel.html)

#### ► International Association for Medical Assistance to Travelers, (716) 754-4883

ADDRESS: 417 Center St., Lewiston, NY 14092

A list of doctors in 125 countries available 24 hours a day

#### ► U.S. Department of State, (202) 647-5225

INTERNET:

[travel.state.gov/travel\\_warnings.html](http://travel.state.gov/travel_warnings.html)

### Dive Insurance

#### ► DAN, (800) 446-2671

#### ► DSI, (800) 574-7117

#### ► PADI, (800) 223-9998

### Travel Insurance

#### ► Access America, (800) 284-8300

#### ► International SOS Assistance, (800) 523-8930

#### ► TravelGuard, (800) 826-1300

### Evacuation Insurance

#### ► DAN, (800) 446-2671

#### ► TravelAssist, (202) 296-9620

### Further Reading

#### ► Rodale's Scuba Diving

INTERNET: America Online at keyword "RSD"; [www.scubadiving.com](http://www.scubadiving.com)

READER RATINGS: RSD's Reader Ratings section provides verbatim comments from other divers, as well as detailed evaluations of boat conditions, dive conditions, and resort and operator staffs. Call (912) 351-0855 to order back issues.

TRAVEL GUIDES: Our Travel Guides (usually two per issue) are mini tour books to popular dive destinations, and detail visibility, marine life, peak travel seasons, etc.

# #12



water. Hum if necessary.

**Plan C ► WATCH WHAT YOU EAT.** Don't eat fruits you haven't peeled yourself—bananas are ideal. Don't eat veggies unless they're cooked. In some countries, fertilizer is of human origin. Beware of dairy. Never eat meat that hasn't been cooked until the juices run clear, and only while it's hot. Never, ever eat raw shellfish. It's the same concept as chewing on an air filter in Los Angeles: every crappy thing that's floated by is concentrated in it.

## Disaster #12

**You find out malaria is rife in your destination.**

You're lying in bed, alone (wait, it gets worse), and you start shaking, freezing then burning and finally sweating like Marlon Brando in a Miami August. According to the World Health Organization, 300 million people contract malaria each year and 2.5 million of them die. If you think you're infected, get a blood test as soon as possible to determine the species, so you can get the proper treatment.

**Plan A ► CHECK YOUR DOC'S CREDENTIALS.** Make sure your doctor's up on travelers' health issues. The American Society of Tropical Medicine & Hygiene (see sidebar) will give you a list of recommended specialists nationwide.

**Plan B ► DO YOUR HOMEWORK.** Know if your destination has malaria and what kind—chloroquine-sensitive or chloroquine-resistant—by calling the Centers for Disease Control (see sidebar) so your doctor can start you on the proper preventative treatment early.

**Plan C ► DON'T GET BIT.** Have a skeeter-beater outfit to wear, including hat, long-sleeve shirt, long pants and socks (all cotton) that you can soak in a solution of concentrated deet (\$3.99 for a spray bottle from Campmor) and water (ratio, 1:8) before you leave home. Keep it in a sealed Hefty bag and it'll be effective for a 10-day trip. Also, a mosquito net to cover your bed is a cheap investment (\$9.99 from Campmor, check it all out at [www.campmor.com/virtual.store](http://www.campmor.com/virtual.store) or call 800-CAMP-MOR).

### Plan D ► CONSULT YOUR PHYSICIAN.

Mefloquine—the most commonly prescribed prophylactic for malaria—has been known to cause anxiety, dizziness, nausea and hallucinations. The dangers of diving while on this medication are obvious, and, according to Dr. Sam Shelanski, side effects on the surface could be exacerbated by increased nitrogen and oxygen partial pressures. Doxycycline has been proven effective, but must be taken every day, and can also cause side effects, including nausea and increased skin sensitivity to the sun.

## Disaster #13

**The rental gear sucks.**

You've seen it before—the regulator looks like it's made from a coconut and a garden hose; the BC is a life vest from the airline you flew to this one-palm-tree island.

**Plan A ► BRING YOUR OWN.** Hey, nobody said this was a cheap sport, did they? Bring a regulator, BC, computer and mask at least.

**Plan B ► TEST IT OUT.** If you have to use any unfamiliar equipment, make a shallow, supervised check-out dive.

## Disaster #14

**The diving sucks.**

My motto's always been: Even a bad day of diving beats a good day at work. There have been times, however, when I'd rather have been working.

**Plan ► TAKE A CLOSER LOOK.**

Paul Humann, chairman of REEF and author of the fish, creature and coral ID books, suggests you look closer. "If the conditions are less than ideal, get right down to the reef or the sand or grass and watch for a while. You'll begin to see entire communities of fascinating creatures you would have passed right over if the visibility were perfect."

MODEL, RICHARD KREILING; CASTING SERVICES COURTESY OF TERRI TURBERGEN





## Disaster #15

### You lose your dive gear.

Your dive boat sinks. The bad news: You lose your expensive equipment, underwater cameras and strobes. The good news: They find your \$3 bottle of mask defogger during the salvage operation.

**Plan A** ► REST ASSURED—IF YOU'RE COVERED. Your pricey stuff should be covered by a homeowners or renters insurance policy, which usually covers possessions outside your home. Call your insurer to make sure they'll cover it wherever you go and whatever you do.

**Plan B** ► GO BY THE NUMBERS. To speed up the claims process, record the serial numbers and prices of all your dive gear before you go.

## Disaster #16

### You think you're bent.

Not a good time to discover the local chamber's nothing more than a Hefty bag and a bicycle pump. Dr. Peter Bennett, executive director of Divers Alert Network (DAN), offers these tips to keep you from getting bent:

**Plan A** ► WORK OUT. Stay in shape.

Maintaining proper weight—especially if you're over 40—is crucial to avoiding the chamber.

**Plan B** ► GO EASY ON THE SAUCE. Drinking is good on a dive vacation, as long as it's water. Dehydration is a major factor in DCS. Drink plenty of fluids during the diving day and take it easy on the alcohol at night.

**Plan C** ► GO EASY ON THE DIVING. Take a day off during a week of diving. "We noticed doctors getting bent at the end of week-long trips, so we began taking Wednesdays off. Since then, no more bends."

**Plan D** ► HAVE A GAS. Nitrox adds a margin of safety if you dive with it at air exposure times, and use it shallow to avoid oxygen toxicity. Bennett warns, however, that nitrox isn't bends-proof. "You'll get DCS if you push its limits, just like regular air."

**Plan E** ► TAKE IT SLOW. The slower the better for ascent rates. "Definitely not faster than 30 feet per minute. I believe you should go slower."

**Plan F** ► STOP, FOR PETE'S SAKE. Always perform a safety stop at 15 feet for three to five minutes. Remember, the ascent from safety stop to the boat is the most critical distance

of your ascent, so go slow.

**Plan G** ► BUNDLE UP. Keep warm between dives. When you chill, you hold onto the nitrogen load longer, which makes your surface interval less effective.

**Plan H** ► LET YOUR TRUE FEELINGS BE KNOWN. Don't ignore symptoms. Call DAN's Diving Emergency Hotline. A dive doctor or medic will assess whether you need to get to a chamber, and then help you get to one.

## Disaster #17

### You are bent.

Even though you've followed your computer, made slow ascents and brought along your lucky rabbit's foot, you're bent.

**Plan A** ► GET DIVE INSURANCE. Your regular health insurance probably doesn't cover you. That's why dive insurance was created (see sidebar).

**Plan B** ► SHOP AROUND. DAN's Master Plan covers injuries that occur while diving or snorkeling with no depth limit and provides evacuation for the member and immediate family. PADI's Platinum Plan has similarly complete coverage but has a 130-foot depth limit. DSI (Diver's Security Insurance) offers a plan that covers in-water injuries, chamber treatment and evacuation, but has a 120-foot depth limit.

## Disaster #18

### You lose your money.

You get successfully medevaced stateside, while your money continues to enjoy the rest of the vacation without you.

**Plan A** ► ADOPT A DIFFERENT POLICY. A cancellation/interruption insurance policy reimburses you for non-refundable charges if you must cancel, delay or cut your trip short. Some companies (see sidebar) bundle this coverage with baggage protection, extra medical coverage, medical transportation and a life (read "death") insurance policy—all for about \$7 per \$100 of benefit (trip cost).

**Plan B** ► BUY SOONER THAN LATER. A spokeswoman for Travel Guard International suggests you buy a policy right after you book your trip. "We offer the extra benefits of rental car collision coverage and agree to accept pre-existing medical conditions if you purchase our policy within seven days of your initial trip deposit."

Travel agencies usually give you a brochure and application form from the insurance com-



pany they recommend. If you decide to get it, call their toll-free number and use your credit card rather than sending in the brochure, as your coverage will be effective immediately.

## Disaster #19

### You lose everything.

You lose your passport, your plane tickets, even that nice eel-skin wallet your sister-in-law got you for Christmas. Now you're forced to spend the rest of your days as a simple fisherman on an idyllic tropical isle.

**Plan A** ► BE A COPYCAT. Photocopy your plane tickets and passport before you leave—this will help speed up replacement. Leave one copy with someone at home who can fax it to you when you lose the other copy along with its originals, you big dummy.

**Plan B** ► REMEMBER THE THREE C's. Travel with a mix of cash, traveler's checks and credit cards. Pocket about \$50 in small bills for cab rides, porters, etc., then keep the rest in a money belt. Sign your T-checks only once, and leave a copy of the numbers with a friend at home. Bring only the plastic you'll need, i.e., the cards with a little room on them. And never, ever expect to find a working ATM machine anywhere.

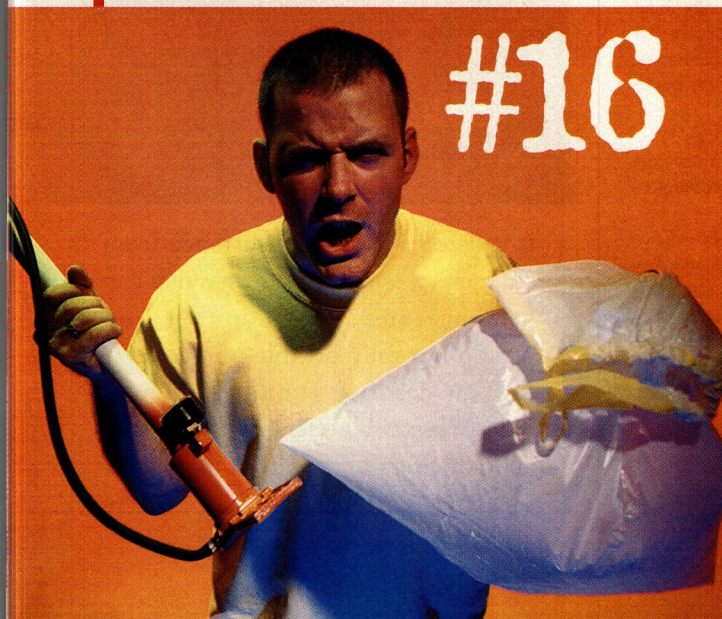
**Plan C** ► SET A FEW RECORDS. On an index card, record all the important numbers: plane ticket, reservation confirmation and contacts for all hotels and tours, passport, dive travel specialist, insurance and credit card cancellation info, and traveler's checks. Try really hard not to lose this card.

**Plan D** ► CALL UNCLE SAM. If you wind up destitute and want to go home, call the U.S. Consulate. They'll help you get a new passport and arrange for someone to send you the money to get back.

## Disaster #20

### You think everything sucks.

The disaster is you. If you're an obnoxious whiner, stay home, or travel alone and try to spoil only your own vacation. Herndon is more polite than me: "You should leave your Americanisms—expectations of a U.S.-style infrastructure and creature comforts—at home. If you can't, there are plenty of nice places to visit here. A good attitude is everything when you travel."





# Ouch!

**Paul Humann, master of fish portraiture, wants you to meet a few of his shadier friends—armed, but not necessarily dangerous.**

Text & Photography by **PAUL HUMANN**  
Introduction by **STEPHEN FRINK**

Paul Humann has introduced more fish to more divers than any other underwater photographer working today. Since its publication in 1989, Humann's Reef Fish Identification has become the most popular and useful marine life identification book ever. The success of this title, as well as its companion volumes, is the result of not only a practiced eye and photographic skill, but also countless hours in the water.

It all began for Paul in the late 1960s as an attorney in Wichita. His days were occupied with oil and gas law, but his spirit was compelled to take underwater pictures at every opportunity. To follow that dream, Paul bought the Cayman Diver in 1970 and operated the first live-aboard dive boat in the Caribbean. For nine years he dived several times a day, nearly every day, and always with camera in hand. He built a terrific file of fish images and established himself as one of the world's premier underwater photographers.

But a seed was planted when his guests constantly returned from their dives asking, "What was that fish?" He discovered there was no good reference book to provide the answer. Bird-watchers had wonderful guides—why not divers? New World Publications, a collaboration between Paul and Ned DeLoach, eventually evolved to serve that very need.

These days, Paul is also vitally committed to the Reef Environmental Education Foundation (REEF), the nonprofit organization that he and Ned founded. Just as there was no adequate field guide for fish, Paul discovered that there was no adequate information source available concerning the distribution and abundance of marine life. Today, groups like NOAA, the Nature Conservancy, the Bonaire Marine Park and the Florida Keys National Marine Sanctuary have been able to institute programs based on accurate, empirical data gathered from REEF field surveys and other programs.

Reflecting on his 38-year career in sport diving and publishing, Paul says his greatest satisfaction has come from bringing marine life awareness to divers. If divers better understand their environment, he believes, they will learn to care more deeply about preserving a fragile ecosystem. In his words, "in the long run, it is divers who will protect our oceans."

**F**or thrill-seekers who get into scuba diving for the promise of life-threatening encounters with dangerous sea life, that first dip into the deep must be disappointing indeed. Fact is, there just isn't much down there waiting to take a piece of you. The greatest threat of bodily harm comes at the diver's initiation—when feeding or spearing fish. But that doesn't mean you should be careless about encounters with marine life, because there are plenty of opportunities for the klutzy or uninformed diver to ruin a perfectly good vacation with an unnecessary injury.

The best way to avoid such a fate



Great barracuda

is to keep a respectful distance from sea critters, especially the ones that can be dangerous. And to do that, you should not only be able to recognize the few creatures considered hazardous, but also understand something about their nature and their threat.



## BOX JELLIES

**ID:** Also known as sea wasps, box jellies can be distinguished from other jellylike plankton by their distinctive two- to three-inch cube-shaped dome and single stinging tentacle that drapes from each of the four corners of the cube's open end.

**The Danger:** This is one nasty little customer and should be avoided. Contact with bare skin can produce intense pain, redness and welts. Severe stings may cause muscle cramps and breathing difficulty.

**The Deal:** The translucent creatures drift just below the surface at night. They are attracted to light and occasionally occur in swarms. Fortunately, box jellies are seldom a problem in most reef environments. If a sting occurs, treat for shock and seek medical attention.

## GREAT BARRACUDA

**ID:** Look for the telltale body—a long, silver cylinder—and a severe underbite with nasty teeth.

**The Danger:** There are few things more unsettling to the new diver than to come face-to-face with a great barracuda. These large, sleek predators can reach lengths approaching six feet, are quite curious and regularly investigate the commotion caused when divers enter the water. The fish's menacing teeth, prominently displayed when they slowly open and close their mouths, add even more drama to these encounters.

**The Deal:** Contrary to the way they may look, these fish are not aggressive toward divers in the least. By opening and closing their mouths, they're simply pumping water past their gills to aid respiration. There have been few, if any, substantiated attacks on divers unless spearfishing or fish feeding are involved, and even these are rare occurrences. So relax and enjoy the company of these magnificent creatures.



Box jelly



## MORAY EELS

**ID:** Long, heavy, snakelike body, tapered head and continuous dorsal, tail and anal fins.

**The Danger:** Like barracudas, morays get a bad rap because of their intimidating sets of teeth.

**The Deal:** These shy, nearly blind creatures use one of the keenest senses of smell in the animal kingdom to locate prey—which doesn't include divers. Although they can deliver a nasty bite, attacks are rare. Generally, morays occupy crevices in the reef with only their heads exposed. However, those morays conditioned to hand-feeding occasionally leave their lairs and swim up into the water column to greet approaching divers. These individuals are easily avoided by swimming out of the area.

## FIRE CORAL

**ID:** Fire coral is a hydroid colony that secretes a hard skeleton. Colonies grow in various forms and often encrust other structures; however, fire coral can always be identified by its tan to mustard color.

**The Danger:** When touched by bare skin, the animal's battery of stinging capsules inflicts a burning sensation.

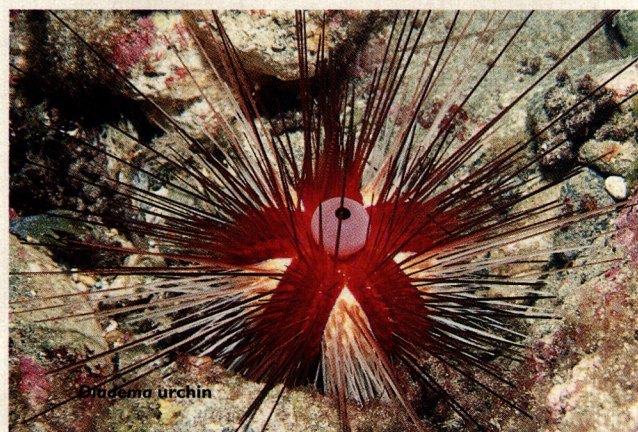
**The Deal:** The pain is usually short-lived and neither severe nor dangerous. For a few sensitive individuals, contact can cause redness, welts and a rash that might last for several days. In the event of a sting, never rub or wash the affected area with water or soap; both actions cause untriggered stinging capsules to discharge. Instead, bathe the injury with vinegar and sprinkle with meat tenderizer, which may help alleviate the symptoms.



Moray eels



Fire coral



Diadema urchin

## SEA SNAKES

**ID:** The olive sea snake in the photo is one of approximately 50 known species of sea snakes. The five non-poisonous species of snake eels inhabiting the waters of the Caribbean are often mistaken for sea snakes.

**The Danger:** Although extremely venomous, these air-breathing marine reptiles have small mouths and are not aggressive.

**The Deal:** Sea snakes range from East Africa to the Pacific coast of Central America. You won't encounter them in the Atlantic and Caribbean Sea. There has never been a substantiated case of a diver or snorkeler being bitten.

## SEA URCHINS

**ID:** Urchins have solid, typically spherical bodies covered with spines of varying shape and length. The beautiful red *Diadema* urchin pictured here is found in the waters off New Zealand.

**The Danger:** A few species of urchins have long, needle-sharp spines that can easily produce painful puncture wounds.

**The Deal:** The spines of most sea urchins are not sharp enough to penetrate a diver's skin. But remember that wetsuits and heavy gloves will not protect you from the spines of all species. Being aware of your position in the water and good buoyancy control are the keys to avoiding an unpleasant encounter with an urchin.

## SEA ANEMONES

**ID:** Solitary polyps attach to the bottom. Most anemones can be identified by their tentacles, which vary in length, shape, color and number among species.





Olive sea snake

**The Danger:** Stinging nematocysts on the tentacles of anemones rarely affect divers, but some can produce a burning sensation similar to that of fire coral. The example pictured here is the branching anemone of the Caribbean, one of the nasty ones.

**The Deal:** Be careful not to touch or brush against anemones. The branching anemone makes its home in reef crevices, so be careful where you stick your hands.



Branching anemone

## FIRE WORMS

**ID:** Body divided into repetitive segments. Bristles grow from two sides of each segment.

**The Danger:** For defense, fire worms have developed bundles of tiny, white, sharp sensory bristles. These bristles can easily penetrate the skin and break off, causing a painful, long-lasting irritation.

**The Deal:** Fire worms are found on reefs around the world. They should never be handled.



Fire worm

## SCORPIONFISH

**ID:** Scorpionfish come in a variety of shapes and colors, but they're always well-camouflaged and can be distinguished by their sharp dorsal fin spines.



Scorpionfish

## Fish-Watching in Paradise

**T**ake a dive vacation that counts—join REEF for its sixth season of one-week field surveys at favorite dive destinations.

**April 25-May 2** ▶ Dive Provo, Turks & Caicos

**May 9-16** ▶ Baskin In The Sun, Tortola, British Virgin Islands

**June 20-27** ▶ Sand Dollar Condominium Resort, Bonaire

**July 25-Aug. 1** ▶ Sunset House, Grand Cayman

**Aug. 23-28** ▶ MV Spree, Flower Garden Banks, Texas

**Sept. 12-18** ▶ MV Sea Fever, Key Largo to Key West

**Sept. 19-25** ▶ MV Sea Fever, Key West to Dry Tortugas

**Oct. 10-17** ▶ V.I. Divers, St. Croix, U.S. Virgin Islands

**Nov. 7-14** ▶ MV Caribbean Explorer, Saba

For more information, contact REEF at (800) 272-9122 or (305) 451-0312, fax (305) 451-5147. E-mail: [photo-tours@aol.com](mailto:photo-tours@aol.com). Internet: [www.reef.org](http://www.reef.org).

Resting on the bottom, they wait to snap up any unsuspecting prey that ventures too near. The scorpionfish family includes lionfish and stonefish.

**The Danger:** Their venomous dorsal fin spines can be raised defensively and can inflict a puncture wound.

**The Deal:** Scorpionfish envenomizations are often quite painful, but only the stonefishes of the Indo-Pacific inflict a sting that is potentially lethal.

Paul Humann's marine life identification books are available from New World Publications, (904) 737-6558, fax (904) 731-1188. Or order from RSD's web site at [www.scubadiving.com/amazon](http://www.scubadiving.com/amazon).



# EGYPT'S RED SEA

THE DESTINATION **RSD** READERS  
VOTED WORLD'S BEST FISH LIFE AND



VISIBILITY IS NOT JUST FOR EURO-  
DIVERS ANYMORE. BY **KEITH PHILLIPS**

WAITING MY TURN TO GIANT STRIDE OFF THE swim platform, my eyes are drawn across the blue water to the taupe sands and chocolate mountain peaks of the eastern Sahara, now backlit by a hazy desert sunset. Three days into a week-long cruise of the southern Egypt coast and I'm *still* not used to this mind-boggling scenery, above or below water.

Spoiled by a day of spectacular deep wall dives

**RSD  
Travel  
Guide**

on a massive seamount, no one expects much excitement from the handful of shallow coral pinnacles where we have anchored for the night. We're about to find otherwise.

The small columns rising up from 70 feet of water pulse with a swirling school of blue-keel surgeonfish that race around the base of one pinnacle like the field at the Indy 500. Giant jacks cruise the shallow water above us as we swim through a thick





BRUCE W. BROWN

A GROWING NUMBER OF DIVERS FROM AROUND THE GLOBE ARE ATTRACTED TO THE REEFS OF SHARM EL SHEIKH AND THE REST OF EGYPT'S RED SEA. THE ISOLATION OF DIVE SITES AND THE LACK OF FISHING PRESSURE COMBINE TO SHELTER EXOTIC REEF FISH, AN ASTONISHING RANGE OF CORAL SPECIES AND LOTS OF BIG PELAGICS.



# EGYPT DIVE IN



## Getting There

British Airways, Lufthansa, TWA and KLM offer daily flights from the U.S. to Cairo and the international airport at Sharm El Sheikh via Europe. Only EgyptAir offers direct flights daily from New York to Cairo. The airline also offers several flights daily from Cairo to Sharm El Sheikh and Hurghada.



## Language

Arabic, but English is spoken in hotels and dive shops.



## Money Matters

The Egyptian pound (£) floats against the U.S. dollar. At press time, the official exchange rate was US\$1 to £3.40, valuing the pound at about 29 cents. Exchanges can be made at airports and major hotels. Credit cards are widely accepted at major resorts and dive shops, but expect a 3 percent surcharge to be added to the bill.



## Food & Water

Drink bottled water only and lots of it to stay hydrated in the arid climate. Use it for brushing teeth, too. Inspect the seals of all bottled water before drinking. Food and vegetables that have been cooked or peeled are safe—all others are suspect. This is no place to try street food.



## Electricity

240 volts/50 cycles with two-pronged plugs. Bring converters and adapters for your electronics.



## Weather

Winters are cool with daytime highs in the mid-70Fs, but summers bake—expect temperatures well over 100F. The desert and the sea cool rapidly at night, so bring a sweater or light jacket as a precaution.



## Accommodations

Luxury resorts are the trend in major resort towns, though budget travelers can still find backpacker-style accommodations. In the Sinai, you can also book dive packages that include Bedouin-style camping.



## Dive Operators

Dive stores and live-aboards tend to be hotel-based. Most have multilingual staffs and a full range of affiliations with U.S. and European certification agencies. Major dive centers offer a full range of diving services from resort courses to nitrox. Some also offer technical diving services and instruction including tri-mix and rebreathers.



## Documents

A valid passport and visa are required. You can obtain a tourist visa on arrival in Egypt, but getting one in advance is always a good idea. If you fly direct to Sharm El Sheikh, you may be issued a Sinai-only visa that, through a quirk in the law, does not legally allow you to dive Ras Mohammed National Park.

A full tourist visa (good for three months) costs \$15 from any Egyptian consulate. For information and a visa application, call the Embassy of the Arab Republic of Egypt at (202) 895-5400 or the New York consulate at (212) 759-7121. Other consulates are located in San Francisco, Chicago, New York and Houston.



## Just in Case

A recompression chamber supported by the U.S. Agency for International Development is located at the medical clinic in Sharm El Sheikh (011-2062-600-922).



## For More Information

On the web, check out the Red Sea Virtual Diving Center at <http://interoz.com/egypt/vdcl>. For a list of dive operators try [www.Red-Sea.com](http://www.Red-Sea.com).

Guidebooks will help you get the most out of your stay. Lonely Planet's *Egypt & the Sudan Travel Survival Kit* is a good resource for general travel information and topside sightseeing. Dive-specific references you'll find helpful are *The Dive Sites of the Red Sea* by Guy Buckles and published by Passport; *Diving and Snorkeling Guide to the Red Sea* by John Ratterree, published by Pisces Books; and, if you can find a copy, the out-of-print *Red Sea Diver's Guide* by Shlomo and Roni Cohen, published by Seapen Books. For a comprehensive guide to Red Sea marine life, consult *Indian Ocean Tropical Fish Guide* by Helmut Debelius and published by Aquaprint.



MAP BY ANN GEISINGER

school of glassy sweepers choking a wide circular swim-through. Inside one hollow column the fluorescent green eyes of a school of flashlightfish glow like fireflies.

Five minutes into the dive and I'm convinced: this is one of the most amazing concentrations of fish I've seen yet.

Every dive I made on my week-long cruise of the Egyptian

Red Sea is memorable, but Sha'ab Shear

South stands out because it was such a surprise—kind of like finding some of the planet's best diving on the edge of its largest desert.

## PARTING THE RED SEA

Bordered by seven desert countries, the Red Sea is a narrow, nearly landlocked gash of water that sits at the crossroads of Africa, Europe and the Middle East. For decades, the northern Red Sea off Egypt has been to European divers what Cozumel has been to North Americans—a close-to-home destination with world-class diving at bargain prices. Now that Americans are increasingly venturing to the Red Sea, there's a boom of new luxury resorts and live-aboards rising to meet the demand.

In one sense, dive tourism here has been 40 million years in the making. It began when shifting tectonic plates split the Arabian Peninsula from what is now North Africa and allowed water from the Indian Ocean to rush into the gap. The rift is still expanding—a half-inch every year—slowly widening a sea that's currently 1,200 miles long, 200 miles wide and 10,000 feet deep in some places.

Today, the Red Sea and the Indian Ocean exchange very little water. In relative isolation, the Red Sea has developed a higher-than-normal salinity and its own endemic twists on Indo-Pacific marine life. It also contains the northernmost fully developed reef system on the planet and boasts a diversity of 1,000 species of marine life. According to Reef Check '97, an international sampling of 300 reefs in 30 countries, the corals in the Red Sea are among the healthiest anywhere.

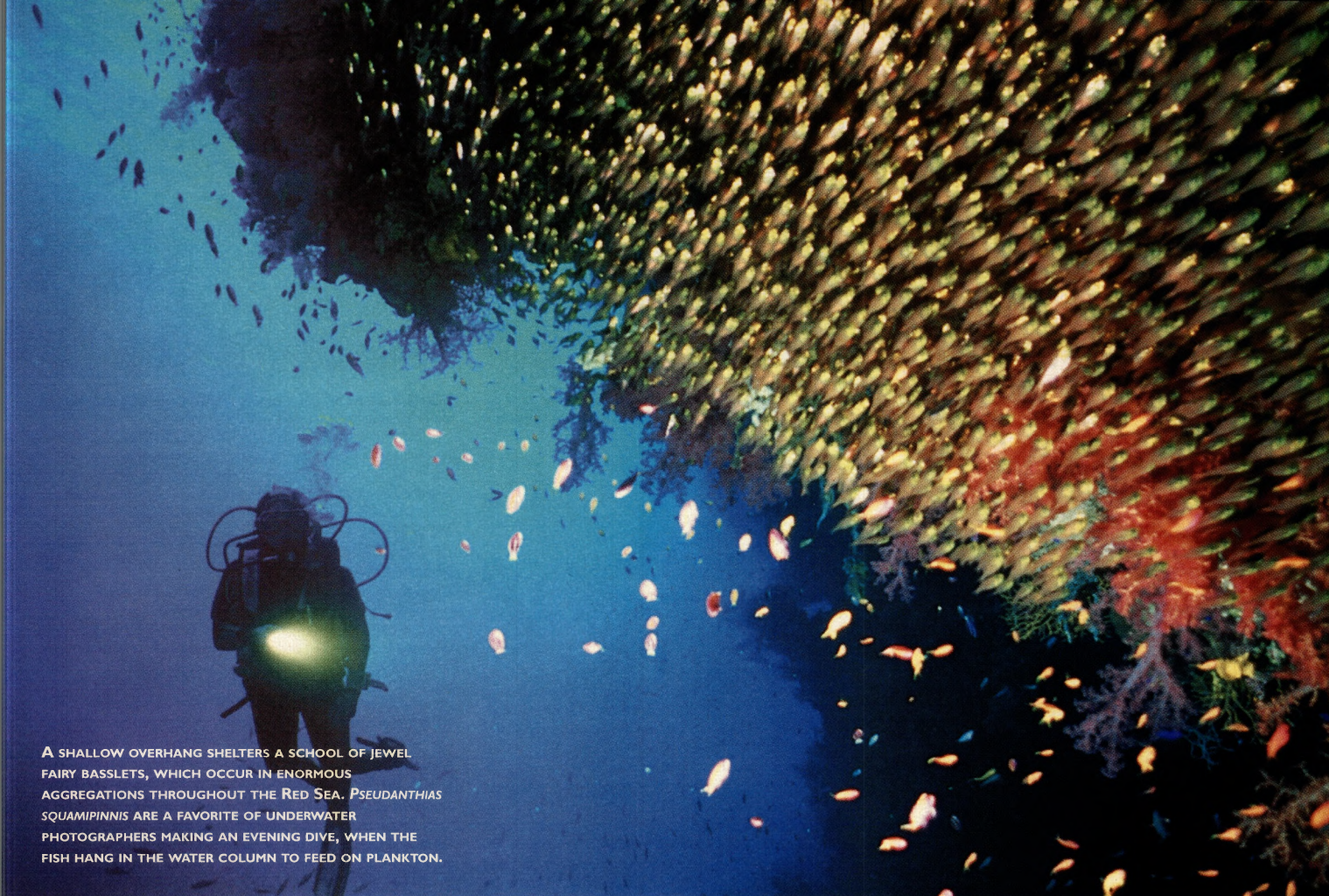
## DIVE DRILLS

The lack of fresh water flowing into the sea, as well as intense evaporation caused by the arid climate and steady winds, causes the Red Sea to be saltier than most oceans. As a result, you'll need to add a few pounds to your weight belt to overcome increased buoyancy. The water here is also cooler than you would expect, peaking at 80F in the summer and dropping to the 60Fs in winter, so you'll need extra neoprene too, maybe a dry suit for winter. Visibility varies by location and with seasons, but on average you can expect an honest 100 feet.

Except for an estimated 50 days of flat water every year, the Red Sea is choppy, though summer months bring the calmest weather. Currents vary by location, but count on drift diving on exposed seamounts and pinnacles.

Depending on which part of the Egyptian Red Sea you visit, you can dive shallow patch reefs, deep walls and shipwrecks, but for my money, the best diving is found on coral *ergs*. Seamounts, pinnacles or bommies by other names, these coral mountains rise to within feet of the surface, offering shallow coral gardens swarmed by tropical fish and deep coral walls tended by massive pelagics.





A SHALLOW OVERHANG SHELTERS A SCHOOL OF JEWEL FAIRY BASSLETS, WHICH OCCUR IN ENORMOUS AGGREGATIONS THROUGHOUT THE RED SEA. *PSEUDANTHIAS SQUAMIPINNIS* ARE A FAVORITE OF UNDERWATER PHOTOGRAPHERS MAKING AN EVENING DIVE, WHEN THE FISH HANG IN THE WATER COLUMN TO FEED ON PLANKTON.

## THE SINAI PENINSULA/SHARM EL SHEIKH

This mountainous desert peninsula jutting into the northern Red Sea is one odd piece of real estate. Once the domain of the nomadic Bedouin people, the Sinai and its history have been scarred by the wars fought to control this barren but strategically important terrain between the Gulf of Suez and the Gulf of Aqaba.

A nascent dive industry took hold in the 1960s under Israeli occupation and has blossomed in the peaceful years since the historic Camp David Accord gave the territory back to Egypt.

The Sinai is the center of Red Sea diving for one, narrow reason: Ras Mohammed. The thin strip of land that juts out from the tip of the peninsula is named for a wind-carved cliff that is said to resemble the Islamic prophet. Divers know it as the most popular collection of wall diving sites in the Red Sea, thanks to the sheer desert cliffs that plunge vertically into the water here.

The reefs here were declared a no-touch, no-take national park in 1983 (the rules are strictly enforced) and since then the park has been expanded north into the Gulf of Aqaba to include popular reefs all the way to Na'ama Bay and the village of Dahab. While there is some shore diving along shallow reefs in this region, the best wall sites are usually dived by boat.

## STRAITS OF TIRAN

Plateauing just beneath the surface, this series of four seamounts forms a natural pinch point to the entrance of the Gulf of Aqaba. Exposed to the currents sweeping through the deep, narrow channel, the hard and soft corals here grow prolifically, attracting all manner of marine life. If there is one place in the Red Sea where you are still virtually guaranteed to see sharks, it's here off Jackson, Woodhouse, Thomas and Gordon reefs.

Accessible by day boats from the Sinai or by live-aboards, these reefs are considered some of the finest advanced dives in the Red Sea. Just be prepared for strong currents and extreme depths.

## STRAITS OF GUBAL

Ships have traversed the Red Sea for centuries and many have fallen victim to the coral pinnacles that lie just beneath the surface. Nowhere is this more true than in the Straits of Gubal, the Red Sea's wreck alley at the entrance to the Gulf of Suez. Six, large modern wrecks are accessible by day boats from Sharm El Sheikh and Hurghada, though the best way to see them is by live-aboard.

The most famous wreck here is the *Thistlegorm*, a World War II freighter sunk by a German bomber before it could deliver its cargo of military hardware including jeeps, tanks and motorcycles. The encrusted ship and its cargo are a photogenic dive reminiscent of the wrecks in Truk Lagoon.

Exposed at the northern end of the sea, the strait is one of the choppiest areas in the Red Sea, but it's rarely too rough to dive. You can also make reef dives on nearby islands and coral pinnacles including Abu Nuhas—which features three of the most famous Gubal wrecks—*Giannis D*, the *Carnatic* and the *Chrisoula K*.

## HURGHADA

Parts of Hurghada, the boomtown of Egyptian tourism, resemble one massive construction zone. In the near future, the seaside resort town will be one long string of luxury resorts, a sort of Middle-Eastern Cancun. The already well-developed infrastructure includes more than 70 dive shops offering the full range of services from resort courses to tri-mix.

DENIS TAPPAREL



# Seventeen Must-See Sites

## SHARM EL SHEIKH/ RAS MOHAMMED Ras Ghozlani

**Depth** ▶ 100 feet. **Access** ▶ Boat. **Skill Level** ▶ Novice to advanced. **What you'll see** ▶ Located halfway between Sharm El Sheikh Bay and Ras Mohammed, this remote and rarely visited site has some of the best diving in the Sinai. If it grows, crawls or swims in the Red Sea, you'll find it on this shallow mini-wall and deeper sloping patch reefs.

### Shark Observatory

**Depth** ▶ 130 feet. **Access** ▶ Shore or boat. **Skill Level** ▶ Intermediate. **What you'll see** ▶ Not long ago you could look down from the desert cliffs here and watch sharks gather, but ever since the place became a popular dive site, the sharks have dispersed. You might still spot a wayward blacktip or gray reef shark but the guaranteed attraction is dense hard and soft corals and shark-sized Napoleon wrasse.

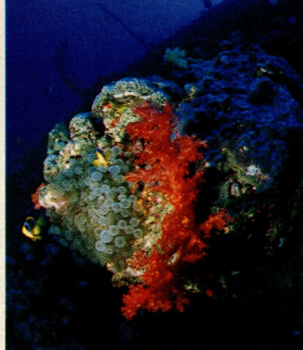
### Anemone City

**Depth** ▶ 130 feet. **Access** ▶ Shore or boat. **Skill Level** ▶ Intermediate. **What you'll see** ▶ A longtime favorite of Sinai divers, the smooth contour of this steeply sloping reef is broken by ledges and outcroppings of thick coral growth. The slope is silly with anemones and their attendant anemonefish, making this a favorite site for macro photographers.

## NA'AMA BAY Near Garden

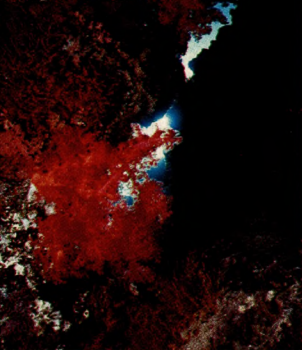
**Depth** ▶ 100 feet. **Access** ▶ Shore or boat. **Skill Level** ▶ Novice. **What you'll see** ▶ Expect to be nuzzled by a giant Napoleon wrasse looking for a handout, but don't fall for the con. Fish feeding is now prohibited. Located just north of the entrance to Na'ama Bay, this sloping wall dive drops from 20 feet to 100 feet and bursts with a colorful array of hard and soft

GIANT ANEMONES, COFT CORALS AND HARD CORALS COAT THE WRECKAGE OF THE GIANNIS D.



MARTIN J. SUTTON/EARTHWATER STOCK

AN EXPLOSION OF SOFT CORALS FILLS A CRACK IN THE WALL OF PANORAMA REEF.



AMOS NACHOUM

THE BROTHERS ISLANDS ARE OPEN, EGYPTIAN SOLDIERS STATIONED ON BIG BROTHER WELCOME VISITORS.



MARTIN J. SUTTON/EARTHWATER

corals. It's also a popular snorkeling and glass-bottom boat reef, so to avoid the crowds serious divers should make this one a night dive.

### Far Garden

**Depth** ▶ 130 feet. **Access** ▶ Shore or boat. **Skill Level** ▶ Intermediate. **What you'll see** ▶ This deep wall goes to a maximum depth of 165 feet as it drops away rapidly from shore. The most entertaining portion is found between 20 and 40 feet where a number of small caves are filled with glassy sweepers in the day and flashlightfish at night. Deep divers will find large overhangs covered in hard and soft corals between 100 and 120 feet.

### DAHAB Blue Hole

**Depth** ▶ 130+ feet. **Access** ▶ Shore or boat. **Skill Level** ▶ Advanced. **What you'll see** ▶ Contained in a lagoon south of Dahab, this vertical cave drops nearly 1,000 feet. While the novelty of diving this deep blue hole is the main attraction in Dahab, better coral and fish life is found outside the cavern on a rich reef slope.

## STRAITS OF TIRAN Woodhouse Reef

**Depth** ▶ 130 feet. **Access** ▶ Boat. **Skill Level** ▶ Intermediate to advanced. **What you'll see** ▶ Current-swept, but worth the effort, the coral plateaus in the narrow channel between the Sinai and the Tiran Islands boast some of the lushest soft coral growth and biggest fish life in the Red Sea. Stay to the east side of this long, narrow reef and you'll find big tuna as well as schools of jacks, snapper, surgeons and unicornfish.

### Thomas Reef

**Depth** ▶ 130 feet. **Access** ▶ Boat. **Skill Level** ▶ Intermediate to advanced. **What you'll see** ▶ The smallest of the four Tiran reefs, this coral plateau is exposed to the most current, a fact not lost on the healthiest growth of hard and soft corals in the Sinai area. Fish life is concentrated in the shallows and dominated by tiny tropicals, grouper and wrasse species.

## STRAITS OF GUBAL Thistlegorm

**Depth** ▶ 100 feet. **Access** ▶ Boat. **Skill Level** ▶ Intermediate to advanced. **What you'll see** ▶ Truk Lagoon, eat your heart out. This World War II supply ship was headed to the Suez Canal when a lucky German bomber sank it and its cargo of heavy machinery. Though still largely intact, the hull is split open to reveal the encrusted cargo of locomotives, jeeps, motorcycles and other armament. The wreck is still intact thanks to strict prohibitions on wreck stripping.

### Giannis D

**Depth** ▶ 90 feet. **Access** ▶ Boat. **Skill Level** ▶ Intermediate to advanced. **What you'll see** ▶ In 1983, this Greek freighter became one of the latest victims of the notorious Abu Nuhas seamount. It's encrusted with a wide variety of soft corals and a few small colonies of hard ones, too. The wreck is now home to grouper, angelfish, lionfish and schools of jacks that cruise by for dinner. Its shallow depth and intact structure make it a popular dive.

### Carnatic

**Depth** ▶ 80 feet. **Access** ▶ Boat.

**Skill Level** ▶ Intermediate to advanced. **What you'll see** ▶ Another Abu Nuhas victim, the *Carnatic* is considered one of the best wreck dives in the Red Sea. She sits on her port side broken into three, easy-to-penetrate sections. The wreck is encrusted with soft corals and manned by a dense population of grouper.

## HURGHADA/ SAFAGA/QUSEIR Abu Hashish

**Depth** ▶ 50 feet. **Access** ▶ Boat. **Skill Level** ▶ Novice. **What you'll see** ▶ Like fireworks frozen in mid-burst, the short, stubby branches of finger-like corals reach out in an array of pastel colors. Big schools of black emperor fish cruise the reef while shy grouper hide beneath the circular spread of table-top corals. Blue-spotted rays are common on most dives, and swarms of jewel fairy basslets and unicornfish join solitary Napoleon wrasse in swim-bys of foot-long giant clams.

### Panorama Reef

**Depth** ▶ 110 feet. **Access** ▶ Boat. **Skill Level** ▶ Intermediate. **What you'll see** ▶ You need several dives to fully explore this egg-shaped erg that's a panorama of Red Sea marine life. Look for anemonefish inside the tentacles of giant anemones, pulsating schools of golden jewel fairy basslets, and thick schools of parrotfish and grouper in the shallows. On deeper portions of the vertical walls, Christmas-tree-sized bushes of black corals compete for space with wide branches of deepwater gorgonians.

### Elphinstone

**Depth** ▶ 130+ feet. **Access** ▶ Boat. **Skill Level** ▶ Intermediate to advanced. **What you'll see** ▶ A long, cigar-shaped coral mountain with sheer vertical walls and sloping shoulders. Let the current carry you along the straightaways past Sphinx-like outcroppings and promontories of mounding star corals, deepwater gorgonians and bushy soft corals. Schools of big jacks cruise the deep blue while Napoleon wrasse stay close to the wall.

### Salem Express

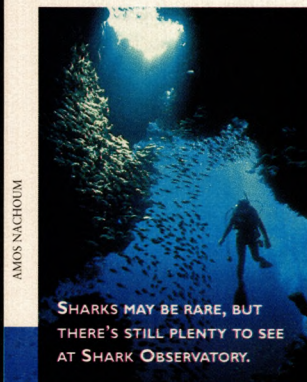
**Depth** ▶ 120 feet. **Access** ▶ Boat. **Skill Level** ▶ Intermediate. **What you'll see** ▶ The Red Sea's spookiest wreck dive is a poignant reminder of the tragedy that accompanies shipwrecks. Unused lifeboats, luggage, children's toys, radios and other items spill out from the 300-foot car ferry that went down in minutes in 1991. The intact ship lies on her port side and you can penetrate the wheelhouse, but don't even think about taking any souvenirs.

## THE BROTHERS ISLANDS Big Brother

**Depth** ▶ 130+ feet. **Access** ▶ Boat. **Skill Level** ▶ Intermediate to advanced. **What you'll see** ▶ From the surface to the maximum depth of 230 feet, the coral pinnacle that is the base of the larger of the two Brothers Islands drops away with sheer vertical walls of abundant hard and soft corals. Free-falling down this healthy coral slope may be the most exciting dive in the Red Sea.

### Little Brother

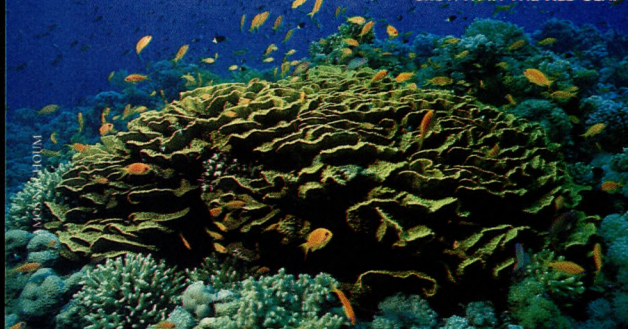
**Depth** ▶ 130+ feet. **Access** ▶ Boat. **Skill Level** ▶ Advanced. **What you'll see** ▶ The growth of soft corals here is described by one guidebook as "a psychedelic crocheted cap over the reef." Schooling snapper and unicornfish also cloak the seamount, and the smaller of the two pinnacles is known to attract gray reef, whitetip and hammerhead sharks.



AMOS NACHOUM

SHARKS MAY BE RARE, BUT THERE'S STILL PLENTY TO SEE AT SHARK OBSERVATORY.

WOODHOUSE REEF BOASTS SOME OF THE LUSHEST CORAL GROWTH IN THE RED SEA.



AMOS NACHOUM





JEWEL FAIRY BASSLETS AND PURPLE STAGHORN CORALS DOMINATE THE SHALLOWS OF WOODHOUSE REEF IN THE STRAITS OF TIRAN.

DENIS TAPPAREL

From Hurghada, day boats ply the Giftun Islands, which offer shallow coral gardens and deep canyons. A sandy bottom supports rays and the occasional shark including whitetip reef, gray reef and hammerheads, as well as the occasional whale shark.

More and more live-aboards are basing cruises in Hurghada because it provides central access to Sharm El Sheikh and the Straits of Gubal as well as southern itineraries to offshore seamounts and the Brothers Islands. Smaller villages of Safaga and Quseir are miniature versions of Hurghada with their own resorts and dive shops.

## THE BROTHERS ISLANDS

Live-aboards were invented to reach off-the-chart spots like the Brothers Islands. The pair of exposed coral peaks come screaming to the surface from a depth of 230 feet. Pristine and loaded with fish and sharks, the steep reefs are said to be the best diving in the Red Sea. Unfortunately, the islands were closed at press time while the Egyptian government deliberated on how best to protect them. Dive operators say they hope to have the area reopened to divers soon.

A lighthouse, built on the larger of the two islands in the late 1800s, is still in operation by the Egyptian military and the soldiers stationed there are said to welcome visitors (especially if they bring gifts of food and cigarettes) when the islands are open to divers.

## TRAVEL SAVVY

Travel to Egypt is exciting not just for the opportunity to dive the rich waters of the Red Sea, but for the opportunity to visit a country and culture forged by 5,000 years of human history. Tourism is the second largest industry in Egypt. As home to the famous

# SEA-ING RED: A guide to local marine life

If you're new to Indo-Pacific diving, you'll recognize many fish species by shape, but will notice that they have different color patterns and markings than their Caribbean cousins. Other species are like none you've seen before. You'll need a set of good ID books to identify everything, but among the more common species you'll find:

## Map angelfish

You'll recognize the shape right away but the coloration may leave you puzzled. This angelfish is sometimes called the Arabian angelfish for the yellow splotch on its blue flank that resembles the Arabian peninsula. Juveniles sport a groovy psychedelic bar code in blue, white and black.

## Red Sea bannerfish

These beauties come in black with yellow stripes and sport a pronounced dorsal fin. They travel in pairs or small schools and make great photo subjects.

## Red Sea anemonefish

You'll find these yellow fish with twin vertical white stripes snuggling in the arms of anemones.

## Scorpionfish & lionfish

The peacock-like spines of these camouflaged reef dwellers are beautiful but painful to the touch. Beware the spines as you home in for a close-up.

## Crocodilefish

My favorite of the Red Sea fishes, this bottom-dweller looks like a cross between a flounder and a croc. Look for their bulging eyes in the sand, particularly near shipwrecks.

## Jewel fairy basslet

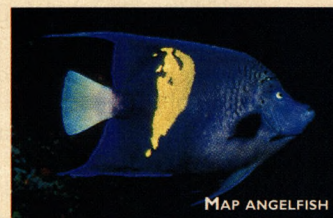
The generic term "goldfish" comes from these tiny tropicals that shimmer in the bright, sunlit water of shallow reefs.

## Wrasse & parrotfish

Wrasse species in the Red Sea include the six-foot-long Napoleon wrasse, named for the hat-like hump on its forehead. Not as big but every bit as colorful are bumphead parrotfish.

## Unicornfish

The most aptly named fish in the Red Sea is a species of surgeonfish with a joust-like horn growing from its head. There are long- and short-horned varieties. Both are found on the edge of drop-offs.



MAP ANGELFISH



BANNERFISH



ANEMONEFISH



LIONFISH



CROCODILEFISH



FAIRY BASSLETS



NAPOLEON WRASSE

DENIS TAPPAREL

AMOS NACHOUM

MARK MINTZ

KELLY TAPPAREL

CHRIS CRUMLEY/  
EARTHWATER STOCK

AMOS NACHOUM

AMOS NACHOUM

pyramids of Giza and other relics of the pharaohs, the country has played host to world travelers for generations. Parts of the country are thoroughly westernized, while others are bastions of



ancient Arab and African culture. Here are some important tips for getting the most out of your stay.

► **Terrorism/Crime:** Egyptians are friendly and welcoming to visitors, a fact obscured by sporadic terrorist attacks on tourists, including a bus firebombing in Cairo in September 1997 that killed nine tourists, and a militant raid near Luxor in November 1997 that killed 60. In the aftermath of the attack, the U.S. State Department advised citizens to avoid travel to Egypt.

Prior to the fall of 1997, attacks by Muslim fundamentalists attempting to destabilize Egypt's secular government had declined sharply, thanks to heavily armed and highly visible security at airports and major tourist attractions.

At press time, the State Department public announcement was scheduled to expire on Feb. 23, 1998, but could be extended. For the latest information, visit the U.S. State Department on the web at [www.travel.state.gov/travel\\_warnings.html](http://www.travel.state.gov/travel_warnings.html) or by calling (202) 647-5225. Travel warnings and updates can also be obtained by fax, by calling (202) 647-3000.

There is little anti-American sentiment in Egypt. In fact, Americans are something of a curiosity to Egyptians who are more accustomed to hosting European

and Japanese tourists. As a rule, tourists are safe in Egypt and are more likely to be the victims of petty theft like pickpocketing than terrorism or violent crime.

► **Baksheesh:** An Arabic word you'll learn quickly in Egypt is *baksheesh*. It can mean a gift or alms, but most commonly it means a tip. Although tipping is expected more frequently here than in the West, amounts are typically smaller. Guidebooks recommend you pay doormen and baggage handlers 25 to 50 piasters (50 piasters is a half-pound) per bag. Guides should get one to five pounds per hour depending on the service. For

other services, tip the usual percentage of the bill. Some hotel and airline employees may refuse tips, but it's best to offer. Conversely, many other tourism employees—especially cabbies—aren't shy about asking for baksheesh.

Also be aware that a 12 percent service charge is added automatically onto most restaurant bills. Tip additional amounts only to reward exceptional service.

► **Health:** The chances are fair that you will pick up a mild stomach bug while in Egypt, even if you are careful about what you eat and drink. Bring remedies along with you. In the dry climate it is important to stay well-hydrated, so drink lots of bottled water (check the seals before drinking) and avoid uncooked food.

No major vaccinations are required for travel to Egypt though a hepatitis A vaccination is recommended for long stays. For updated advisories on vaccination requirements

and health conditions in Egypt, check the North Africa section of the Centers for Disease Control's Traveler's Health page at [www.cdc.gov/travel/](http://www.cdc.gov/travel/) or call the CDC's International Traveler's Hotline at (404) 639-2572.

► **Topside Touring:** A trip to Cairo is a must when you visit Egypt. This international city pulses with the energy of 18 million people carrying out traditions new and old. It's a city where the *muezzin's* calls to prayer echo above the ceaseless roar of traffic crowding onto the roads and highways. The urban sprawl spills out from the Nile into the desert and right up to the pyramids of Giza and the Sphinx.

Other Cairo attractions not to be missed: The packed-to-the-gills Egyptian Museum (the spectacular gold treasures of Tutankhamen are only one of the amazing displays) and the exquisite Khan el Khalili open-air bazaar where you can bargain for your own gold, silver and wooden treasures.

In the Sinai, divers enjoy side trips into the anti-ocean of the mountainous desert. Popular excursions take you to the colored canyons of Wadi Kid and the Ain Khudra oasis. St. Catherine's Monastery, where monks still practice centuries-old traditions, is also found in the Sinai and usually combined with a trip to Mount Sinai, where God is believed to have delivered the Ten Commandments to Moses.

► **Take a Cab:** Leave the driving to the pros. In the maddening crush of Cairo (where donkey carts, cabs and tour buses compete for precious roadway), traffic flows to a set of rules indecipherable to most Westerners. In the interior Sinai, venturing off marked roads can be even more dangerous. The shifting desert sands are seeded with land mines left over from decades of war, and tourists have been killed trying to drive off-road. ☉



THANKS TO STRICT PROHIBITIONS AGAINST WRECK STRIPPING, THE ENCRUSTED CARGO OF THE THISTLEGORM, INCLUDING THIS MOTORCYCLE, CAN STILL BE SEEN ON THE WRECK.

AMOS NACHOUM

## Red Sea Ad Directory

### Live-Aboards

#### Peter Hughes Moon Dancer

(800) 9-DANCER or (305) 669-9391; fax (305) 669-9475 • e-mail: [dancer@peterhughes.com](mailto:dancer@peterhughes.com) • web: [www.peterhughes.com](http://www.peterhughes.com) • Three itineraries in the Red Sea: north from Hurghada to Sharm El Sheikh, south from Hurghada to Elphinstone and south from Mersa Alam to Ras Bañās and beyond. The 105-foot *Moon Dancer* has 10 cabins and can accommodate 20 passengers. Peter Hughes live-aboards set the standard for both safety and luxury. Nitrox is now available. From December 1998 through March 1999, a seven-night trip is only \$945.

### Dive Travel Specialists

#### International Diving Expeditions

(800) 544-3483 or (909) 698-3189; fax (909) 698-3289 • e-mail: [ide@love2travel.com](mailto:ide@love2travel.com) • Offers full range of all-inclusive resorts, live-aboards and tours throughout Egypt, Israel and Jordan.

#### PADI Travel Network

(800) 729-7234, ext. 2, or (714) 540-7234; fax (714) 540-2983 • e-mail: [ptnl@padi.com](mailto:ptnl@padi.com) • web: [www.padi.com](http://www.padi.com) • Come and explore one of the world's best dive destinations with us. Our experienced dive professionals can arrange customized dive packages for seven nights and five days of diving to Hurghada starting at \$422 per person or to Sharm El Sheikh from \$478 per person, plus airfare. Please call for details.

#### Tropical Adventures Travel

((800) 723-5814; fax (206) 441-5431 • e-

mail: [dive@divetropical.com](mailto:dive@divetropical.com) • web: [www.divetropical.com](http://www.divetropical.com) • Selected by *Rodale's Scuba Diving's* readers as North America's #1 favorite dive travel specialist. We offer you the best live-aboard and land-based options available, along with topside tours and all at the best prices, including discount airfare. As North America's largest dive wholesaler with over 24 years of experience and 19 years providing service to the Red Sea, Tropical Adventures is uniquely qualified to arrange your Red Sea dive vacation. One call does it all!

### Other

#### Broadreach

((888) 833-1907 or (919) 833-1907; fax (919) 833-2129 • web: [www.gobroadreach.com](http://www.gobroadreach.com) • Broadreach unlocks the mysteries of the Red Sea in a 21-day summer adventure program for teenagers. Diving is the heart of this odyssey that combines multiple certifications, boat safaris and desert excursions. With more than 30 dives on the itinerary, the "Sinai Experience" includes diving the walls at Ras Mohammed, the Straits of Tiran, and the 415-foot World War II wreck *Thistlegorm*. Teaching is maximized on a 60-foot dive boat and a 1:4 instructor-to-student ratio. Instruction ranges from open water, advanced and rescue courses to numerous specialties such as drift diver, night diver and underwater photography. A divemaster extension is available for qualified candidates. A three-day desert safari with a camel trek is also included. Open to teens aged 13 to 19.



It doesn't take Jeanne Dixon or a fortune-teller's crystal ball to see that dive computers will soon be as common as depth gauges. Matter of fact, in some dive environments, they're already more common. And thank goodness.

Much of what was considered tech diving only a few years ago is now mainstream recreational diving, or at least an extension of recreational diving. Deeper diving (130 to 190 feet), decompression diving and nitrox diving are all common. At the same time, increased participation in altitude diving, cave diving, night

## GENERATION

[ean]

diving and wreck diving has made for longer and deeper diving and added the need for illumination, altitude adjustments and more decompression information. And there's more: The increased use of dry suits, DPVs and underwater communication units has also increased potential bottom times. At the same time, more people are using home computers, making the desire to interface their dive computers far more common.

The result: a boom in new technologies for dive computers. That's why we reviewed these seven dive computers, which function for air or nitrox and are not gas-integrated (gas-integrated computers will be reviewed in our next issue). All of these dive computers also interface with a PC to provide detailed profiles of your dives.

BY JON HARDY

NO SLACKERS HERE.

This new breed of dive computers comes nitrox-ready and downloadable.



# COMPUTERS In Review

## 7 Nitrox-Ready Computers

MANUFACTURER	DACOR	OCEANIC	ORCA	SEA QUEST	U.S. DIVERS	UWATEC	ZEAGLE
Model	EQUANO <sup>2</sup> X	DATA PLUS	PILOT EAN	SOLUTION NITROX	NOVA	ALADIN PRO NITROX	STATUS II NITROX
Mounting Options BC, C, H, M, W	BC, C, W	BC, C, H, W	BC, C, M, W	BC, C, H, W	BC, H, W	BC, C, H, W	BC, W (C AND H AVAILABLE SUMMER '98)
Max Depth (feet)	21'	330'	213'	325'	325'	330'	213'
Ascent Rates (feet/min)	66 TO 33	60 TO 20	66 TO 33	33	33	67 TO 23	66 TO 33
Logged Dives (Available on DC Screen)	10 DIVES OR 10 HOURS	12 DIVES	10 DIVES OR 10 HOURS	25 HOURS	25 HOURS	19 DIVES	10 DIVES OR 6 HOURS
Suggested Retail Price	\$520	\$360	\$469	\$675	\$700	\$695	\$790
Ease of Use (User-Friendly)	GOOD	OUTSTANDING	GOOD	GOOD	GOOD	EXCELLENT	FAIR
Warnings but no Lockouts	✓		✓				✓
Graphic Display (N <sub>2</sub> loading)		✓					
Graphic Display (Other Data)		✓		✓	✓		✓
Color Highlighting (On Graphic Display)		✓		✓	✓		
Waterproof Prompt Card	✓	✓	✓				✓
Time to Desat Displayed	✓		✓	✓	✓	✓	✓
Full NDL in Shallow Water	✓	✓	✓				✓
Has Gauge Mode if Needed	NA	✓	NA	✓	✓		NA
Provides Date/Time				✓	✓		
Temperature Gauge		✓		✓	✓		✓
Dive Simulator	✓		✓	✓	✓	✓	✓
Warranty (Years)	1	2	1	2	2	1	1
Profile Available (On DC Screen)	✓		✓	✓	✓		✓
Altitude Setting	MANUAL	AUTO	MANUAL	MANUAL	MANUAL	AUTO	MANUAL
Altitude Max (Feet)	11,480	14,000	11,480	8,000	8,000	13,000	11,480

### MOUNTING OPTIONS

BC = buoyancy compensator via computer strap or retractor

C = console  
H = high-pressure hose or low-pressure inflator hose

M = mask strap  
W = wrist strap

Thumbs-up and thumbs-down icons indicate those performance aspects that were significantly better or worse than the average for these computers.

### Dacor EquaNO<sup>2</sup>x



High degree of adjustability; no lockouts; easy-to-use settings; good ascent indicator

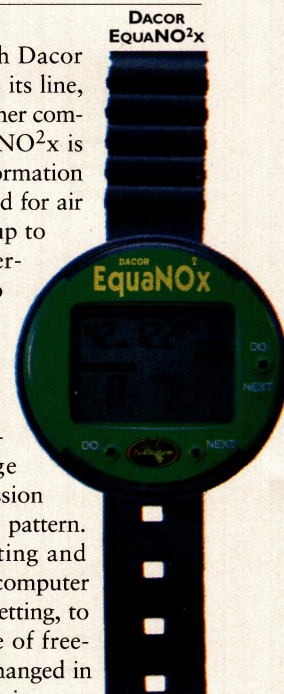


Instructions; light switch; unclear violations

The EquaNO<sup>2</sup>x, which Dacor has recently added to its line, is quite different from its other computer offerings. The EquaNO<sup>2</sup>x is small and packed with information and flexibility. It can be used for air or for mixtures including up to 50 percent oxygen in 1 percent increments. It also remembers your oxygen setting until desaturation and then defaults to 21 percent. Even with a large array of features and functions, it is easy to change modes because the progression follows a clear and sensible pattern. With a dive difficulty setting and four altitude settings, this computer can be used in its normal setting, to provide an average degree of freedom vs risk; or it can be changed in user-selected increments. At its most conservative setting, this is the most conservative computer reviewed here.

The EquaNO<sup>2</sup>x has no lockout for decompression violations, but also does not make it clear enough to the user when such a violation has occurred. The variable ascent-rate indicator, which is slower near the surface, includes an audible warning and two types of visual warnings that make this feature easy to follow. The very practical battery-saving rest mode is indicated by a small clock on the screen.

The instructions are unclear and incomplete. The tap switch that is used for internal illumination can be difficult to use.





## Oceanic Data Plus



Ease of use; instructions; graphic display with color highlighting; ascent-rate indicator; low price



Default on oxygen setting; dive numbering system

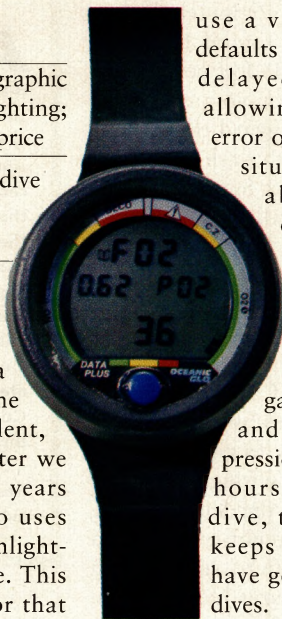
The Oceanic Data Plus is the easiest to use and the least expensive computer in this test group, making it both a Tester's Choice and Best Buy. The instructions are not only excellent, they are the best of any computer we have reviewed over the last six years of testing. The Data Plus also uses graphic displays with color highlighting and icons to great advantage. This includes an ascent-rate indicator that is easier to follow than any other in this test group. The internal illumination is also the clearest of all these computers.

However, there are some functions that require the user to plan carefully in order to avoid confusion or difficulties. If you make a nitrox dive (any oxygen setting greater than 21 percent) and forget to reset just before the next dive, the Data Plus will default to a setting of 50 percent oxygen. When you surface to correct your error, the Data Plus will not allow a change for 10 minutes.

Another area of possible confusion is the Data Plus's dive numbering system. Dives are numbered by dive days rather than continuously, so you will most likely have several dives numbered 1, 2 and 3 in the memory at any one time.

The Data Plus is the only computer in this test group that uses a push button to start, to call up information or to change settings. Therefore, there is no automatic start-up, and you will need to learn to anticipate the setting or data you need: If you wait until you see what you want displayed on the screen before removing your finger from the button, you will be one setting past it. Even given this problem, the Data Plus is still extremely easy to set and read.

A unique and useful function of Oceanic dive computers (given that they



OCEANIC  
DATA  
PLUS

use a violation mode that defaults to gauge mode) is the delayed violation status, allowing you to correct an error or get out of a difficult situation, such as going above the deco stop, exceeding maximum depth or having an extremely deep deco stop. Once in permanent violation, these computers work as gauges, providing depth and time but no decompression information for 24 hours. If you continue to dive, the 24-hour period keeps extending until you have gone 24 hours with no dives.

Rather than presetting the computer for degree of conservatism, you can use the Data Plus's graphic nitrogen loading display to adjust the degree of conservatism simply by "backing off" the computer's limits as you dive.

## Orca Pilot EAN



High degree of adjustability; no lockouts; easy-to-use settings; good ascent-rate indicator; suitable for aggressive diving



Instructions; light switch; unclear violations

The Pilot EAN is part of a family of dive computers from Orca, including versions for air and nitrox, plus audio versions of both of these. The audio function is a well-modulated voice that provides data so the computer can be used hands-free and in low visibility. When used in audio mode, the computer is placed on the mask strap. For normal use, the computer straps to your wrist. The audio can be switched on or off at will.

The Pilot computers share the features of the Dacor EquaNO<sup>2</sup>x, including its strengths and weaknesses: It is small, extremely flexible and packed with information. There is no lockout after a

## Dive Computer Testing

To test these computers, we dived to depths of 60 to 130 feet and:

- ▶ Used four oxygen settings ranging from 21 percent to 50 percent.
- ▶ Used all of the computer's available altitude or difficulty settings.
- ▶ Made dives that required decompression.
- ▶ Violated each computer's oxygen and decompression limits.
- ▶ Made a sawtooth dive by repeatedly going from 60 to 100 feet.
- ▶ Made multilevel and repetitive dives.
- ▶ Made dives to confirm each function and feature of the computers.

decompression violation, but it doesn't make it clear when you're in violation. Instructions are unclear and incomplete.

But the Pilot and the EquaNO<sup>2</sup>x differ significantly in their degrees of conservatism. They appear to use the same algorithm, but the Pilot's cut-off settings are much more liberal, making the Pilot more useful for extended-range or technical divers who dive under more demanding conditions and need to push the limits.

To provide functional space for the nitrox features of the Pilot EAN, several features of the Pilot Air computers are left out, including temperature, tissue group, safety stop countdown and time-to-fly countdown. The battery-replacement instructions for the Pilot have been rewritten and improved since we last reviewed this computer.

ORCA PILOT  
EAN



## Sea Quest Solution Nitrox



Extensive memory; profile on screen; floor and ceiling for deco stops; light switch



Fixed ascent rate with no buffer; default and warnings on oxygen setting



**F**or many years, Suunto has made an extensive line of feature-rich dive computers for distribution by Sea Quest. This high quality continues with the Solution Nitrox, a computer that can dive air or nitrox up to 50 percent oxygen in 1 percent increments. The Suunto-made computers in this test group have the most extensive and detailed memory (25 hours) available to the user without interfacing with a PC. This memory can provide a dive profile in one-minute increments on the dive computer screen. Also in the memory is a history of the total number of dives, dive hours and maximum depth. Unique to these computers are two arrows that look like an hourglass and indicate to the user the deepest (floor) and shallowest (ceiling) depths for optimum decompression when deco stops are needed. The tap switch for internal illumination also works easily with a simple push.



SEA QUEST  
SOLUTION  
NITROX

Suunto computers have a fixed ascent rate of 10 meters per minute (33 feet per minute) with no buffer, so any sudden movement toward the surface causes them to flash "slow." If you violate a Suunto computer, it will go into gauge mode for 48 hours and will keep extending that time if you dive with it again during that time.

Care needs to be taken when diving nitrox to confirm your oxygen setting just before the dive, as the default setting is for 50 percent oxygen and you will have to surface and wait 10 minutes before it can be reset. This computer can also have multiple dives of the same dive number in memory, as it rennumbers after each desaturation.

Another caution with these com-

## Computers Not Tested

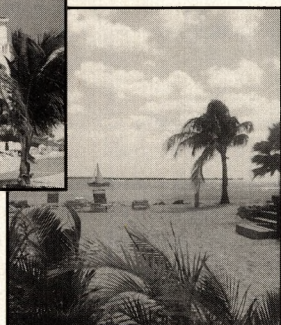
**A**ll manufacturers known to distribute dive computers in North America that are capable of being used for both air and nitrox diving were offered the opportunity to participate in this evaluation. Cochran and Dive Rite did not respond after multiple requests. They both distribute computers that fit this category and we have tested these computers or similar models in the past. To gain a better understanding of the availability and field experience with these non-tested computers, we conducted a phone survey of dozens of dive stores. We found distribution by both of these companies to be limited, particularly Dive Rite. Cochran is now being heavily marketed through mail-order discount houses.

Genesis has a new nitrox version of its Resource computer which was not available in time for these tests.

puters: When used on nitrox dives, the user needs to be careful not to violate oxygen exposure, because once the oxygen limit graph goes into warning mode (flashing and not providing data) it will not return to normal functioning until

## DISCOVER

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the oxygen partial pressure is less than 0.5, which may require going to a deco stop level or even to the surface.

## U.S. Divers Nova



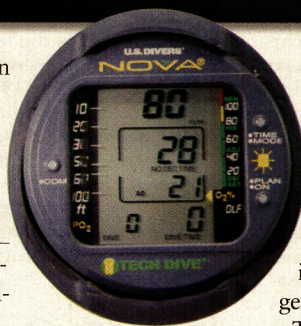
Extensive memory; profile displayed on screen; floor and ceiling for deco stops; light switch



Fixed ascent rate with no buffer; default and warnings on oxygen setting

**U**.S. Divers offers an extensive and diverse line of dive computers and has now added nitrox capability with the Nova. This excellent computer is made by Suunto and shares all the same strengths and weaknesses as the Solution Nitrox, but has its own look and feel.

Like the Solution Nitrox, this computer has an extensive and detailed memory and an indicator to show floor and ceiling depths for deco stops. Both computers will penalize you if you don't follow a couple of



U.S. DIVERS  
NOVA

for other Suunto computers. The use of innovative and diverse computer attachment methods is an area in which U.S. Divers has excelled.

## UWATEC Aladin Pro Nitrox



Clear, easy-to-read display; time to fly actually calculated and displayed; PC interface



Complete lockout

precautions: Confirm your oxygen setting before every dive and be careful not to violate the indicated oxygen exposure.

The instructions for the Nova are better done than those

**F**or many years, UWATEC has made easy-to-read and understand dive computers under its own name as well as for distribution by other manufacturers. In keeping with other UWATEC computers, the Aladin Pro Nitrox has the best PC interface and dive profile printout in this test group. The same interface and software also works for the other computers currently made by UWATEC.

UWATEC computers have the best time-to-fly function in this test group. In fact, UWATEC computers are the only computers tested here that actually calculate

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# WHY DO COMPUTERS LOCK OUT?

**G**ot us fooled. A lockout means the computer stops providing decompression information if you violate deco stops called for by the computer.

Each of the computers tested by ScubaLab has been intentionally violated by omitting a required decompression stop. However, during the more than 1,000 human test dives of over 90 models of computers, the majority of lockouts experienced during our tests have occurred during routine repetitive multilevel dives.

If your car's speedometer quit functioning each time you exceeded the speed limit, or a vital instrument on an airplane no longer provided data after it entered a red zone, would this be acceptable? Then why do manufacturers of so many dive computers use a lock-out mode?

Hard to say. Computer manufacturers may think their liability is lessened by not allowing the computer to be used after a deco violation. Or maybe they think divers are incapable of following instructions or heeding warnings. Or perhaps it's simply a design cop-out.

All decompression tables and dive computers are based on theories and assumptions, not proven scientific facts. While these theories work extremely well, it is widely known that you can get bent on any table or dive computer. There is a "gray" zone where dive computers are programmed to switch from no-decompression to decompression mode. The point of switchover varies greatly and in inconsistent ways with different dive profiles and different computers.

What we do know is that many dive computers do not have lockouts, including the first successful dive computer—the Edge, introduced by Orca in 1983. The Edge's decompression model has the longest successful history of any dive computer and is still being used in current Orca computers, the Marathon and Phoenix. Other computers that do not have a lock-out mode include:

- Dacor EquaNO<sup>2</sup>x
- International Divers Bravo One
- Mares Dive Mate
- Orca Pilot series
- Scubapro DC-12
- Sea Quest Companion and Solution
- TUSA Implex
- Zeagle Stratus series

There are also spin-off, older and less common models that do not have a lock-out mode.

Because there is no significant published criticism of these computers for not locking out, and because there is no accident data suggesting these computers are unsafe, it is unclear why other models continue to lock out.

We believe that dive computers should continue to provide data to the diver after a violation, not become black boxes that take control.

Divers need to understand the risks inherent in any dive and to consider the available data on their current dive status as supplied by the computer. Then they should act intelligently on this data in concert with other input from other equipment, a dive buddy and the environment.

Divers should control their dives, not computers.

—JON HARDY

time to fly, rather than using an arbitrary countdown or using the excessively conservative time to desaturation as the time to fly.

Although the Aladin Pro NitrOX is the only computer tested here that needs to be returned to the factory for battery replacement, our experience has been

that UWATEC batteries last longer than indicated in the specifications. In addition, this is the only computer tested here that indicates on its screen the percentage of battery charge remaining. There is also a reserve built into the battery indicator so that when it reaches zero there is still some life left in the bat-

tery. The Pro Nitrox does not have internal illumination, but does have a luminous display.

The Aladin has a cleaner display than most other computers partly due to some information and settings being only accessible when using the PC interface. UWATEC (Continued on page 111)

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It happens more often than we care to admit: we do a little diving and then fall into a slump. We sometimes get bored with the very sport that used to fascinate us. What can we do when we come to the realization that the thrill is gone?

Our first piece of advice is to get busy with advanced scuba training. But to many new divers, the list of diving certification agencies is a bewildering alphabet soup: PADI, NAUI, SSI, NASDS... How do you sort through them?

**Tip 1:** Study the differences between the agencies by calling them to get information or using the internet to access their web sites. Get beyond the hype and compare their training approaches, philosophies and course offerings.

**Tip 2:** Consider the instructor who'll teach your next course. When the courses of several certification agencies are similar, your teacher becomes a key consideration. In a basic underwater photography course, for example, an instructor's ability to share his knowledge is more

## Beyond Open-Water Certification

— by Rob Curran

important than whether his photo credit has appeared in National Geographic.

**Tip 3:** Consider recommendations on certification agencies from trustworthy parties: friends with experience, local scuba schools and dive centers.

**Tip 4:** Don't forget purely practical considerations. Cost: Cut-rate training may not be a bargain in the long run. Location: Is the training site convenient? Hours: Do meeting times accommodate your schedule?

### Go for an advanced open-water card (AOW).

Many entry-level divers don't realize that the next level of certification—advanced open-water— isn't just more of what you learned in the open-water course. Yes, advanced open-water offers you the chance to hone basic scuba skills and develop self-confidence, but it's also an opportunity to acquire new skills and interests.

In some advanced open-water courses, you get to reach into a grab bag of special-interest activities, selecting the ones that interest you: night diving, deep diving, altitude diving, drift diving, boat diving, dry suit diving, underwater navigation, underwater photography, and search and recovery. And if at least one of these activities doesn't ring your bell, you'd better go back to sleep.

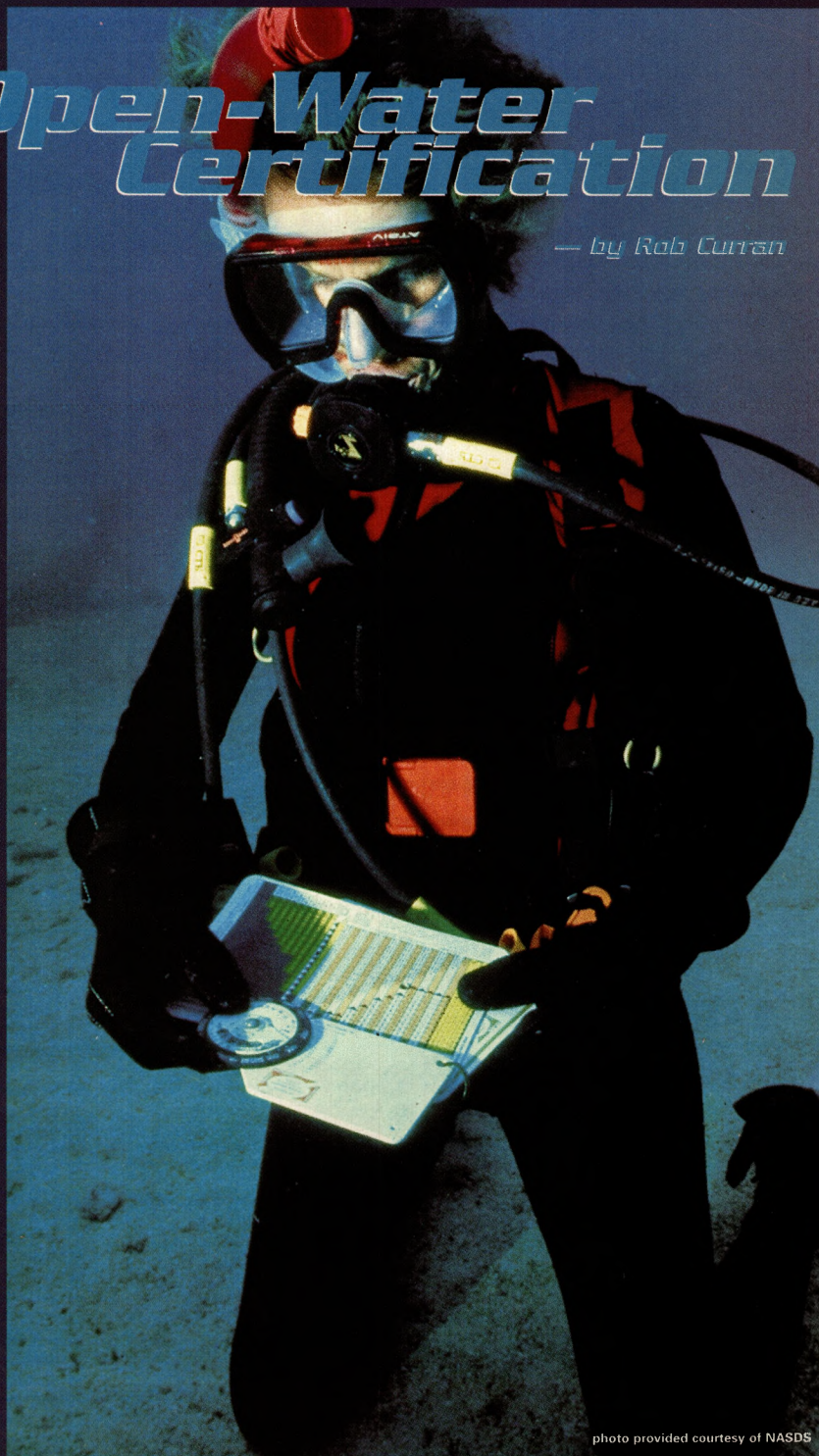


photo provided courtesy of NASDS



Advanced open-water is typically short on book work and classroom hours and long on time under water. The emphasis is on learning by doing. The doing is typically a weekend of diving and serious fun. For details on advanced open-water training, contact a diving certification agency or scuba center.

## Well, Isn't That Special?

If you want to put the zip back in your diving, consider specialty training. Many certification agencies feature particular specialties as part of their standard course offerings, for example, underwater photography, Nitrox/enriched air, search and recovery, deep diver, research diver, night diver, coral reef diver, underwater naturalist, drift diver, multilevel diver, equipment troubleshooting, underwater hunter. The list goes on and on. The list of specialty courses resembles the topics sometimes covered in advanced open-water, but the difference is this: In specialty courses, the activities are covered one at a time, usually in greater depth and detail.



photo provided courtesy of NASDS

moments with dive buddies and non-diving friends and family. ("Look, Ma, you can even count the teeth on that 12-foot hammerhead.")

Contrary to popular belief, you don't need a six-figure income to get started in underwater imaging. Dive centers and live-aboard dive boats offer introductory underwater photography or video courses for \$200 to \$300, and use of camera equipment is usually part of the deal.

Want to experiment on your own with underwater still photography? New entry-level cameras run \$125 to \$200. While you may not be shooting magazine covers with these cameras, you can begin to acquire the necessary knowledge, skills and discipline.

What if you get bitten by the underwater shutterbug? Are you relegated to a life of poverty to finance your habit? No. Remember, you can progressively invest in new or second-hand camera equipment piece by piece, as you advance in skill. Just buy the best equipment you can afford, then maintain it scrupulously. Later, you can sell a piece of photo gear you've outgrown to finance your next investment.

## Picture This

One of the most rewarding and stimulating scuba specialties is underwater photography. Imagine sharing those subocean Kodak

## Nitrox—It's a Gas

Over the past two years, Nitrox has seeped from technical diving into recreational diving. Now both mainstream and technical certification agencies offer training in enriched air. Nitrox offers definite

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**TRIDENT DIVE CENTER, INC.**  
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Contact: Don or Tonya Hubley

**THE OCEAN CORP.**  
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Contact: Dale Kreiner

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Contact: Kathleen & Dusty Bobitzke

**DISCOVER SCUBA**  
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Contact: Art Melvin  
(2nd store)

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Contact: Phillip Stevens

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Nederland, TX 77627  
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Contact: Travis Reed



benefits when it's "used as directed." It allows divers to extend bottom times. It can be used with standard air diving tables for a safety margin with decompression. Users report physiological advantages including



less fatigue after diving. But enriched air can also have a therapeutic effect on divers suffering from the scuba doldrums. Nitrox training offers divers a chance to learn about a new technology that's one of the most important recent advances in diving.

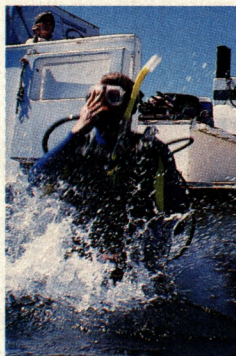
## Pass It On

One time-tested way to rekindle your interest in diving is to hook up with newcomers to the sport. The enthusiasm of students and neophytes is often infectious. Why not get infected while you pass on your skills and knowledge? Spring for divemaster training and you can help certified divers polish their skills and enjoy the sport. Complete an instructor or assistant instructor program and you can introduce students to the wonders of the underwater realm.

Divemasters, assistant instructors and instructors are all recreational diving professionals. A professional rating can open up vistas for part- or full-time employment. If you're not ready to say *adios* to your day job, you can still work part-time, seasonally or on weekends for your local dive shop or charter boat. But if you're ready for a complete change of scenery, you'll need a professional ticket before you hop that plane for St. Somewhere.

Progressing from open-water diver to instructor typically includes the following courses: advanced open-water, medic first aid, rescue diver, divemaster (or assistant

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*\*E-ticket is a rating reserved for high levels of EXCITEMENT. People not interested in the thrill and adventure of new experiences and reaching new levels of enjoyment may wish to try an alternative program - Advanced Couch Commander or Master Channel Surfer.*



Ready for the next step? As an Open Water Diver, you already know the exhilaration of diving – but you've barely broken the surface! PADI Advanced Open Water Diver is an in-water, performance-based program that gives you the skills, experience and confidence to take your diving to new depths of excitement.

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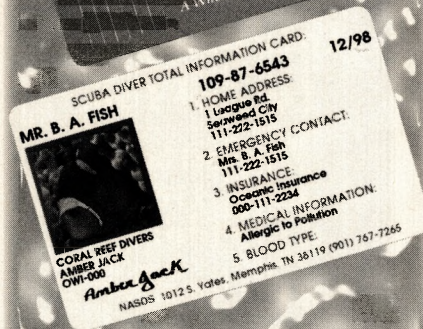
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ciation of Scuba  
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instructor), and instructor. The more of these courses you have behind you, the shorter the path to the instructor's rating. But you can follow the path in several ways. You can knock over each milestone over a period of years. Or you can opt for intensive training in which you'll complete your professional courses in a matter of weeks.

What if you're only an open-water diver and you have your sights—and heart—set on an instructor's rating? Can you still run the fast track in a matter of weeks? Yes, you'll just have to hook up with one of the schools or colleges that offer intensive instructor

programs that begin at the advanced open-water level.

## Technical Diving

While it's tough to define "technical diving," most techies agree that technical diving is physically demanding, highly specialized and equipment-intensive. Technical diving calls for levels of training, safety, dedication and discipline beyond those of pure recreational diving. But if you're willing to pay your dues, tech scuba may be the way to shake your diving blahs.

The list of technical diving activities

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## **Other Ways to Put the Zip Back Into Your Diving**

One final piece of wisdom: Another way to make diving different for you is for *you* to make a difference.

Look around you. There are scores of groups that need your diving skills and experience. What you can contribute is limited only by your imagination.

- Get certified to teach diving to the physically challenged or disabled.
- Volunteer to work with marine research or environmental groups.
- Take your local Cub Scout or Brownie pack to a pool, and introduce the kids to scuba diving.
- Join your neighborhood scuba club and run for president.
- If you're in law enforcement, sign up for training in underwater evidence collection.
- If you're in firefighting or emergency response, ask your employer to enroll you in a scuba rescue course.

Below is some information on agencies, career centers and dive operations that can help you take your love of scuba diving to the next level. Whatever you choose to do, remember to keep it fun. Isn't that why you got into diving in the first place?

## **National Association of Underwater Instructors (NAUI)**

NAUI is the only worldwide non-profit diver training organization dedicated to dive safety through education. NAUI's reputation for quality training is unsurpassed in the diving community and extends to advanced and now technical diver training. With the addition of technical diver training, NAUI Worldwide offers a complete range of courses making multiple agency affiliation unnecessary.

Courses beyond the basic include Advanced Scuba Diver and Master Scuba Diver. NAUI offers fifteen specialties on topics such as Underwater Photographer, Ice Diver, Cave Diver, Nitrox Diver and Scuba Rescue Diver, just to name a few. The new Technical Diver courses include Technical EANx Diver, Decompression Techniques

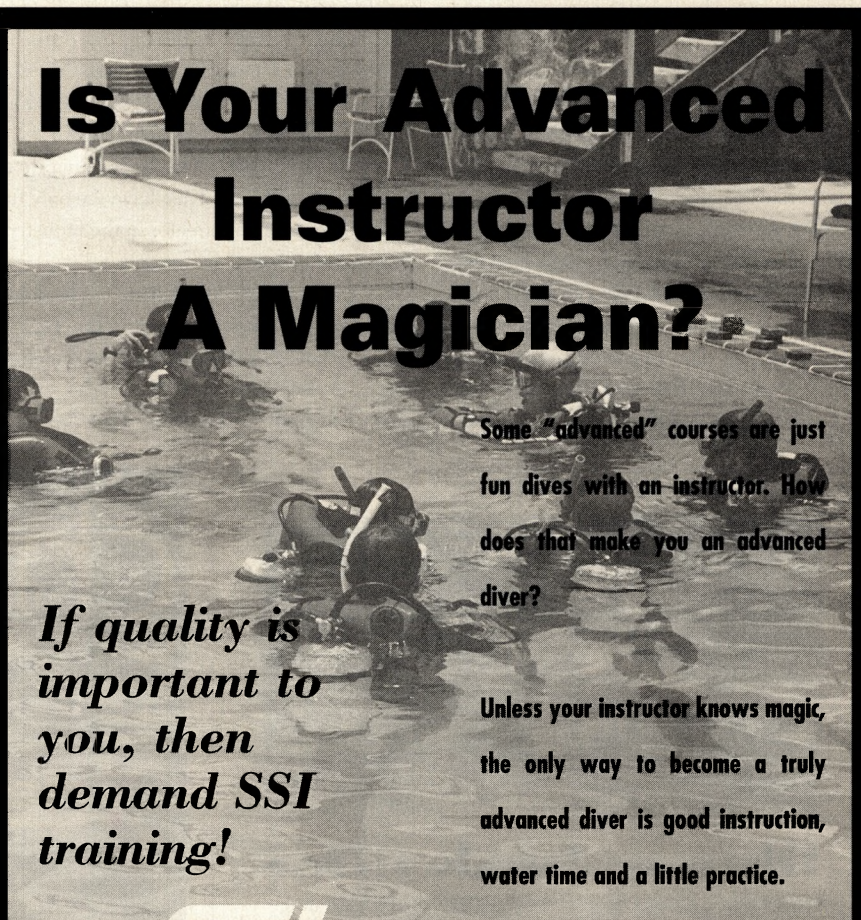
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## **Professional Association of Diving Instructors (PADI)**

The PADI continuing education programs offer options for recreational divers and those considering a full or part-time career in diving.

The PADI Advanced Open-Water Diver program is an in-water, performance-based dive course designed to increase confidence, skills and the overall enjoyment of diving. The program consists of three "core" dives—night dive, deep dive and underwater navigation dive—and two elective dives that might include two of the following topics: wreck dive, underwater photography, altitude dive, boat dive, underwater naturalist dive, dry suit dive, multilevel dive, search and recovery, drift dive and others. Divers can also complete the Advanced Plus Option which consists of the three core dives, six elective



# **Is Your Advanced Instructor A Magician?**

*Some "advanced" courses are just fun dives with an instructor. How does that make you an advanced diver?*

*If quality is important to you, then demand SSI training!*

*Unless your instructor knows magic, the only way to become a truly advanced diver is good instruction, water time and a little practice.*

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For more information, contact a PADI professional or visit your local PADI Dive Center or Resort. Or call 800-729-7234, web: [www.padi.com](http://www.padi.com)

## National Association of Scuba Diving Schools (NASDS)

Advanced courses should make a newer diver more knowledgeable, more efficient in the water and a well-rounded diver in most environments. The NASDS advanced course does just that.

Just like all NASDS education, their advanced course is truly an advanced certification. NASDS teaches by the philosophy of proper knowledge, proper skills and proper equipment = safe and comfortable divers. NASDS dive stores require classroom, pool and open-water in order to become advanced certified, passing up the typical make-a-few-more-dives and you are an advanced diver type of training. The advanced course is centered around dive planning, deep sport diving, night diving and navigation.

For more information on the NASDS Advanced Diver program, call your nearest NASDS dive store or contact NASDS at 901-767-7265, fax: 901-767-2798, e-mail: [info@divesafe.com](mailto:info@divesafe.com), web: [www.divesafe.com](http://www.divesafe.com)

## Pro Dive® Ft. Lauderdale, FL

The first to be named a PADI Career Development Center, Pro Dive has been in business for more than 22 years and has trained more than 2,300 instructors. Aside from excellent instructor training, Pro Dive's advanced offerings include Nitrox, Rebreathers, wreck diving, deep diving, ROS® Resort Operations Specialist training, and advanced open-water — all offered at a variety of times to fit your schedule.

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## Scuba Schools International (SSI)

SSI offers a powerful continuing education program that leads to three ratings. To earn the SSI *intermediate* rating, divers complete any two SSI specialty courses and make a total of 12 dives. For the *advanced* rating, complete four specialty courses and 24 dives. For the *master* rating, complete four specialty courses, the SSI Diver Stress & Rescue course and 50 dives. It's a unique approach with the highest standards in the industry.

The SSI continuing education approach is ideal for active, enthusiastic divers who know how valuable training is. It's flexible because you select the specialty areas that interest you. It's thorough because you receive hands-on training during the dives. And it's valuable because you're taught enough to enjoy the activities after class without supervision.

800-892-2702, fax: 970-482-6157, e-mail: [admin@ssiusa.com](mailto:admin@ssiusa.com), web: [www.ssiusa.com](http://www.ssiusa.com)



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## Ginnie Springs Resort High Springs, FL

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Ginnie Springs has six of the world's most highly respected cave diving educators on its staff. They offer everything from guided cavern dives to advanced cave diving instruction, plus training in technical diving specialties such as Nitrox and Trimix — all on a regular basis.

904-454-2202, fax: 904-454-3201, e-mail: info@ginnie-springs.com, web: www.ginniesprings.com

## Ocean Divers Key Largo, FL

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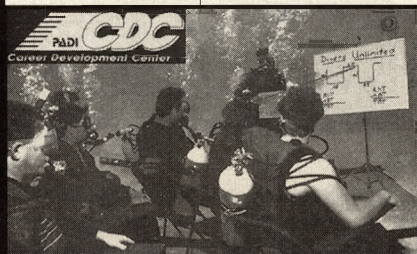
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# DIVERS UNLIMITED

CIRCLE NO. 81 ON READER SERVICE

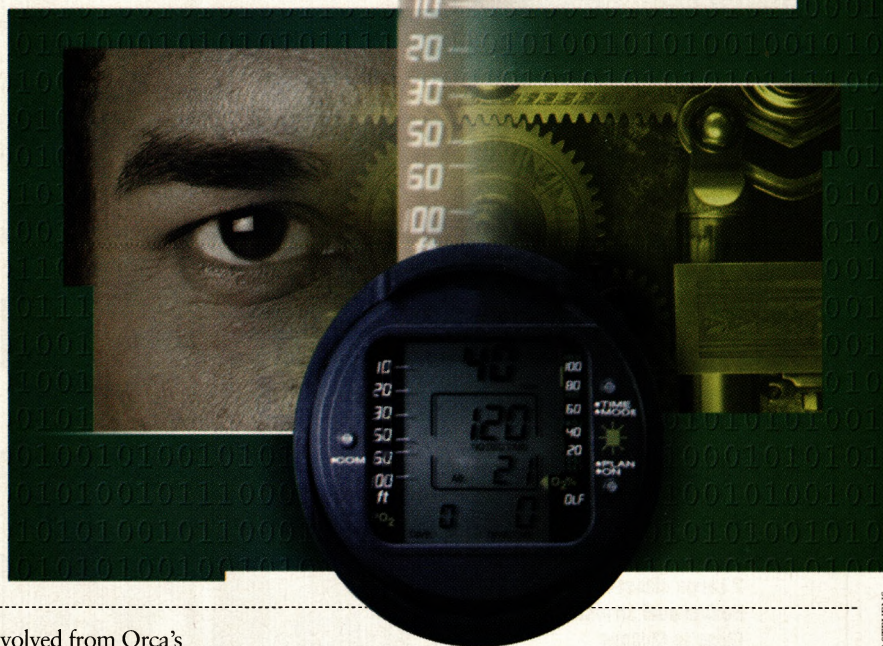


# Is Your Computer Safe?

To be sure, follow these guidelines to understanding and using today's submersible microprocessors.

► by **JON HARDY**

**W**hen the history of this century is written, one of the themes sure to be boldfaced and underlined is the ever-present, ever-widening gap between the rate of technological development and the human ability to keep up with it. In diving, this technological gap between user and machine is particularly evident with dive computers—this decade's most important and most quickly evolving piece of gear. How big is the gap between you and your computer?



GEORGE STEVENS

In less than two decades, dive computers have evolved from Orca's classic Edge, a brick of a dive computer that first made true multi-level diving possible, to today's wonders of miniaturization and computing power: they download to your personal computer, compensate for temperature and workload, factor in varying gas mixtures, blink at us, talk and squawk at us, even calculate our time to fly. So, are today's models safer to dive with than those of old?

Absolutely not.

There's no such thing as a "safe" or "unsafe" computer. It's how we use them that makes them so. And as computers become increasingly more sophisticated, users are challenged to keep up in order to stay safe. That's why when it comes to dive computers, the real safety question is: How well do you understand your computer?



Two choices here: electrical contacts or a start button. Electrical contacts allow

manual (touching them with moist fingers) or automatic activation (immersion in water). With a push button, there is no automatic start-up. And, as is true with most fundamental design differences, each method has advantages and disadvantages. Although automatic activation is a convenience, it encourages you simply to jump into the water without ensuring proper function. And although push-button start-up encourages you to ensure function before getting into the water, it is possible to begin a dive without remembering to activate it.



It seems so simple on the surface, a classic trade-off: the more liberal your dive computer, the greater your freedom to dive but the greater your risk of DCS. On the other hand, the more conservative your computer,



the less freedom you have to dive but the less risk you have of DCS.

The problem is that no manufacturer tells you where its computers rank on the liberal/conservative scale. Only Rodale's ScubaLab does. That's why the "Freedom vs. Risk" chart (page 80) is the key piece of information you need in order to understand how your computer best fits your needs and diving style.

Keep in mind that you can always make a liberal dive computer more conservative by backing off its no-decompression limits. But when using a conservative dive computer, you must be careful not to violate its limits. Most will lock you out, ending their usefulness as dive computers (see "Generation EANx" on page 65 and other past reviews).



Computers use three different approaches to make

their no-decompression limits more conservative. Some provide an adjustment that is set by the user before the dive and allows the user to select from three to six different levels, depending on the particular model. UWATEC uses an automatic adjustment performed by the computer and based on water temperature, ascents and possible microbubbles. This automaticity has clear advantages in that the user does not need to make any settings and therefore cannot make a mistake. On the other hand, it takes control away from the diver and makes these changes based on assumptions. Dive computers that use graphic displays with color highlighting can be adjusted as you use them by simply backing off on the display.



Three completely different approaches are also

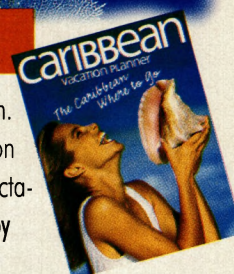
used for ascent-rate indicators—our speedometers to the surface. A fixed rate of 33 feet per minute is used by Sea Quest and U.S. Divers, while Dacor, Orca, UWATEC and Zeagle use a greater rate of ascent at depth and then slow that rate as you approach the surface. Oceanic and many other similar computers provide a graph with color highlighting indicating your speed. Regardless of the type, it's imperative that you understand and use your computer's ascent-rate monitor. A slow, safe ascent is crucial because you

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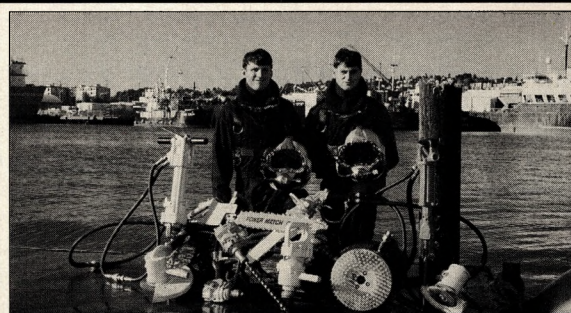


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# MORE TIPS

## What's Important in a Dive Computer?

Most of today's computers share the same basic functions and perform them well. What really differentiates computers are those features performed well by some but not by others. The most significant of these are:

- **USER-FRIENDLINESS**—You need to be able to see, read and understand your computer easily at a glance. The trend, and it's a good one, is to make dive computers feature-rich, capable of providing a great deal of information to the diver. This high order of usefulness needs to be arranged so that the nice-to-know does not get in the way of a clear understanding of the must-know.
- **ABILITY TO CHANGE NO-DECOMPRESSION LIMITS (NDLs)**—The needs, interests, activities and fitness of divers are so diverse, as well as the conditions in which they dive, that dive computers should be adjustable to fit the individual diver. Only in this way can the dynamic between the freedom to dive and the risk of diving be changed to best meet a diver's current situation.
- **USER CONTROL**—Dive computers gather data, make calculations and display the results to the diver. Then the individual diver decides how best to use that data. Dive computers are tools to assist in the planning and execution of dives. Therefore the design of the computer should not take that control away from the diver. This means that the dive computer needs to be adjustable for differing conditions, it should provide warnings and penalties for behavior outside of its program, but it should not lock the diver out unless the conditions of depth or time go beyond the computer's ability to sense and record that data.
- **INSTRUCTIONS AND PROMPT CARDS**—Computers carry out complex functions that are not necessarily self-evident, particularly if you do not use them frequently. Also, there are so many different makes and models of computers that most dive pros cannot keep track of all the different ways they function. All this makes having clear, complete, correct instructions written in American English a must. A waterproof prompt card or quick reference card should also come with a dive computer.
- **GRAPHIC DISPLAYS**—For specific and precise data, digital displays are needed, but for quick reference and the ability to visualize your status, graphic displays are far more useful. The addition of color highlighting and icons or symbols also enhances the usefulness of these graphic displays.

## Reducing Your DCS Risk

Decompression sickness (DCS) is always a possibility when returning from any scuba dive regardless of the breathing mixture used. Intelligently using dive computers can help reduce this risk. In addition, there are four best ways to reduce your risk further with the aid of a dive computer.

- **REDUCE YOUR NDLs**—Before the dive, set your computer to be more conservative, stay out of the computer's caution zone or subtract time from the indicated no-decompression limit while on the dive.
- **SAFETY STOP**—A safety stop is actually a precautionary deco stop. It can be a pause to check yourself, your buddy, the surface and your computer or it can be long enough to use all or most of your remaining air in shallow water. Most commonly, safety stops are three to five minutes in 10 to 30 feet of water.
- **SLOW ASCENTS**—Coming up slowly and under control enhances outgassing and helps to reduce other risks as you approach the surface, such as air embolism, hitting boats, buddy separation, and so on. The current best thinking is that you should move promptly from depth to 60 feet, then slow down to 30 feet per minute up to a safety stop at about 15 feet.
- **INCREASE SURFACE INTERVALS**—By taking a longer surface interval, you allow your body to outgas more effectively while also resting, warming and rehydrating. All this will then reduce the stress on your body—and risk of DCS—during the next dive.

## Two Quick Maintenance Tips

- ▶ **PROTECT IT.** Protective covers are valuable and available for all dive computers. Use them to protect your computer's display screen.
- ▶ **KEEP IT DRY.** If your computer has electrical contacts, it's a good idea to dry them after each use and keep them clean. In addition to the normal freshwater rinsing, you should occasionally clean the contacts with a pencil eraser. Finally, be careful when cleaning and using electrical contacts as you can accidentally and unknowingly change some settings.

can get bent just by ascending too fast, even if you follow all the other classic safe diving recommendations.



The primary violation of concern to most

divers while using a computer is missing a required deco stop. Dacor, Orca and Zeagle models will warn you and record the violation but continue to operate as a dive computer. Oceanic, Sea Quest and U.S. Divers models warn you and then lock you out of decompression functions, but continue in gauge mode, operating as depth gauge and timer. UWATEC com-

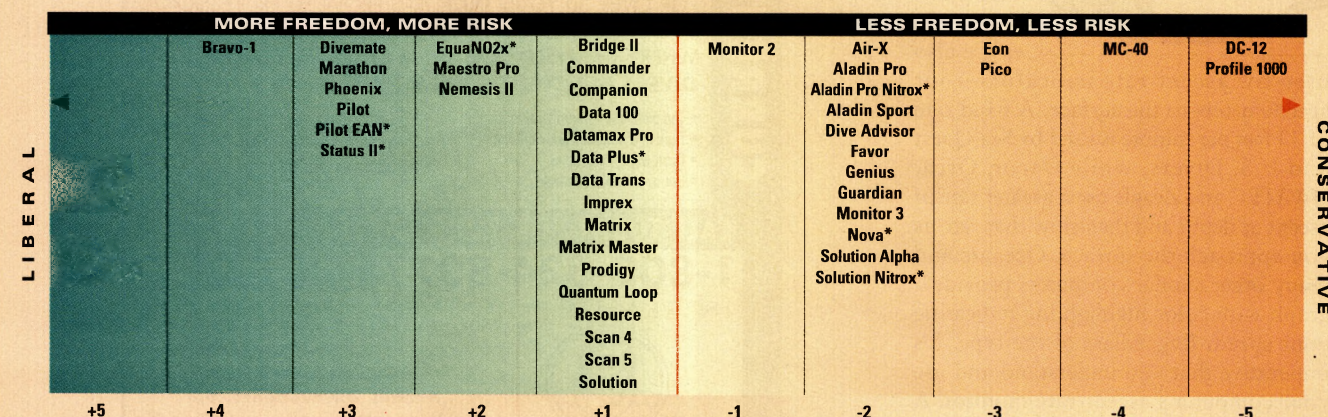
puters record the violations and no longer function as dive computers.



It's ironic that virtually every set of instructions that accompany new computers stress the need (Continued on page 86)

## Freedom vs. Risk

Chart includes all dive computers tested that are still in distribution.



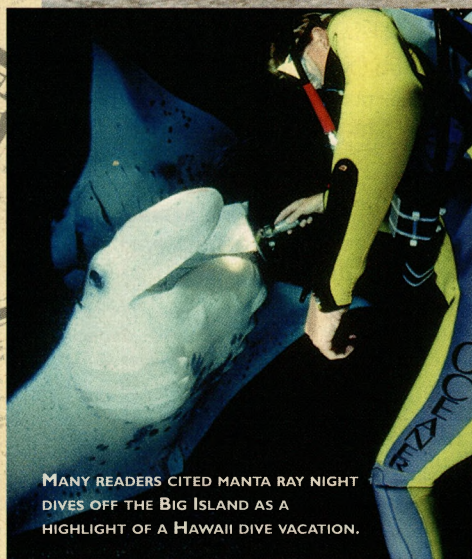
\* Denotes computers reviewed in this issue (see page 65).



# READER RATINGS

## Hawaii and the Pacific

DRAMATIC BEACHES AND  
OTHER TOPSIDE  
ATTRACTIONS CONTRIBUTE  
TO HAWAII'S POPULARITY  
AMONG RSD READERS.



MANY READERS CITED MANTA RAY NIGHT  
DIVES OFF THE BIG ISLAND AS A  
HIGHLIGHT OF A HAWAII DIVE VACATION.

### Hawaii

WHEN HAWAII'S BIG ISLAND WAS VOTED THE WORLD'S BEST OVERALL DIVE DESTINATION in our 1998 Readers' Choice Top 100, it raised more than a few eyebrows. But think about it: Twice the size of all the other Hawaiian islands combined, it's the youngest volcanically, and its underwater terrain is marked by lava tubes, arches and caves. Its drop-offs are frequented by pelagics as well as advanced divers. A full spectrum of colorful Pacific fishes (30 percent of which are endemic) and snorkelers thrive in the clear, shallow waters, and spotlights off Kona encourage nighttime manta ray feeding frenzies. And there's plenty to do above water, too.

Kauai excelled in shore diving, thanks to northern sites that are best dived in summer when the surf's calmest. Snorkelers enjoy sites like Ke'e Lagoon, Koloa Landing and Sheraton Caverns, while advanced divers prefer the walls at Brenneke's Drop-off and Oceanarium's pinnacles.

Maui—the state's second most visited island after Oahu—is probably better-known for windsurfing and sun-worshipping at its world-renowned western beaches. But don't overlook this coast's reefs, which are sometimes visited by wintering North Pacific humpbacks. Snorkelers and divers throng banana-shaped Molokini Crater, the lip of an extinct volcano, off Maui's southwestern shore.

Hawaii may be called the Big Island, but when it comes to tourism infrastructure and sheer population, Oahu takes the cake. The snorkel set takes to Hanauma Bay and Waikiki's beaches like fish to water, but advanced divers ditch Honolulu's skyline and head for the wreck of the *Mahi* and the drop-offs at Twin Caves.

NOTE: Destination scores are based on a response of more than 8,000 surveys. Overall scores for dive operators are derived by averaging their individual scores based on staff, boats, facilities and value. To ensure statistical validity, only those dive operators and resorts that were rated by 25 or more readers are included here.



## French Polynesia

Polynesia (Latin for "many islands") is a triangle of Pacific bounded by Hawaii, Easter Island and New Zealand. France's piece of the pie is idyllic French Polynesia, and includes the isles of Tahiti, Moorea and Bora Bora, well-penned in literature, reflected in art and steeped in lore. Shark and manta encounters are hot on Moorea and Bora Bora, lagoons are popular with snorkelers, and the passes and ocean edges of barrier reefs are popular among advanced divers.

## Palau

Palau's diving is chock-full of superlatives, including drift dives like Blue Corner and New Drop-off that are so electric, you'll need "reef hooks" to anchor you in place while you gaze at a kaleidoscope of reef sharks, thousands of tropical fish and Napoleon wrasses. These walls are also home to prolific bursts of anemones, multihued soft corals and feathery crinoids. Brackish ponds, nestled among the mushroom-shaped Rock Islands, are full of stingless jellyfish that hang in the green water like giant snowflakes.

## Papua New Guinea

The waters of the enormous Indonesian archipelago are said to possess the world's most diverse collection of marine species. In contrast with the Philippines and Indonesia, Papua New Guinea enjoys a far smaller human population, and subsequently far less impact on its reefs and fish. Some of the largest concentrations of fish life are found off its walls and in its reef passes, where tuna, trevally and sharks are common sights. Thriving in the shallows are tufts of white and yellow crinoids, clouds of anthias and patches of cabbage coral.

## Fiji

The culture of Fiji's multitudinous islands may be slow to change, but the waters off Taveuni's north shore are swift. The three- to four-knot currents of Somosomo Strait irrigate one of the world's largest and most colorful soft coral gardens, Great White Wall. The nutrient-rich flow also makes this a more advanced destination and attracts a variety of tropical fish and pelagics.

## Truk

The lagoon is known the planet over for possessing the largest concentration of diveable wrecks. And in turn, great wreck diving makes for awe-inspiring photo ops and intriguing—downright spooky, actually—night diving, among the war antiquities and blooming soft corals. No wonder people like to remember Truk not by souvenirs plucked from wrecks (that'd be illegal), but by taking photos.

## Yap

This traditional, quiet island is known to most Americans for the opportunity to dive with dozens of friendly mantas in its low-vis channels. But Yap also boasts advanced diving on deep, current-washed walls and healthy hard coral gardens. According to our readers, the island is *the* best place in the world to be if you're a seasoned diver. Who are we to argue?

## DIVE OPERATORS Hawaii

<b>Overall</b> : B+
<b>Staff</b> : A+
<b>Boats &amp; Facilities</b> : C-
<b>Value</b> : A-

### Dive Makai Charters

P.O. Box 2955, Kailua-Kona, HI 96745

**Tel.:** (808) 329-2025

**Fax:** (808) 329-2025

**e-mail:** DMAKAI@DIVEMAKAI.COM

**internet:** WWW.DIVEMAKAI.COM/START.HTML

**Years in Business:** 20. **Fleet:** One 31-foot boat. **Morning dive:** Two tanks, 7:15 a.m. to 1 p.m., \$94 to \$115. **Night**

## Hawaii In A Nutshell

	Big Island			Kauai			Maui			Oahu		
	READERS LOVED	RANK IN THE WORLD	NOT KNOWN FOR	READERS LOVED	RANK IN THE WORLD	NOT KNOWN FOR	READERS LOVED	RANK IN THE WORLD	NOT KNOWN FOR	READERS LOVED	RANK IN THE WORLD	NOT KNOWN FOR
FISH LIFE												
VISIBILITY	✓	8					✓			✓	10	
HEALTH OF MARINE ENVIRONMENT												
BIG ANIMALS						✓			✓			✓
WRECK DIVING			✓			✓			✓			
WALL DIVING			✓			✓						✓
SNORKELING	✓	5		✓	9		✓	10		✓	8	
SHORE DIVING				✓	4							
NIGHT DIVING	✓	3										
DRIFT DIVING			✓			✓						✓
BEGINNER DIVING	✓	10					✓					
ADVANCED DIVING	✓											
PHOTOGRAPHY	✓						✓					
TOPSIDE	✓	7		✓			✓	6		✓	9	
VALUE												

**dive:** On request. **E-6 processing:** No. **Nitrox:** No. **Certifying agency:** PADI. **Primary resort affiliation:** None.

**Reader comments** ▶ Very concerned with educating divers about marine life ... Staff knows the area like the backs of their hands ... The briefings are very detailed ... No head on boat ... Great at finding small critters and showing us how to find them ... Snacks and juice on the boat ... Very relaxed and unhurried ... Made you feel like one of the family ... Staff is attentive and enthusiastic ... Expensive ... Computers control your diving, not arbitrary time limits ... Boat was basic ... Cookies, popcorn and pretzels for snacks between dives ... Boats crowded when "full" ... Great service and flexibility ... We applaud their nearly all-female staff ... Boat is small.

<b>Overall</b> : A
<b>Staff</b> : A+
<b>Boats &amp; Facilities</b> : A
<b>Value</b> : A

### Eco-Adventures

75-5744 Alii Drive, Kailua-Kona, HI 96740

**Tel.:** (800) 949-3483, (808) 329-7116

**Fax:** (808) 329-7091

**e-mail:** ECODIVE@KONA.NET

**internet:** WWW.ECO-ADVENTURE.COM

**Years in Business:** 6. **Fleet:** One 50-foot dive catamaran, one 29-foot dive boat; one 36-foot dive boat coming soon.

**Morning dive:** Two tanks, 8 a.m. to 12 p.m., \$90. **Afternoon dive:** One or two tanks, 3 to 5:30 p.m., \$65 or \$95.

**Night dive:** Tuesdays, Thursdays, Saturdays and Sundays.

**E-6 processing:** No. **Nitrox:** Yes. **Certifying agencies:**

ANDI, NAUI, PADI, SSI. **Primary resort affiliation:** Royal Kona Resort. **Resort on-site:** No.

**Reader comments** ▶ These guys know right where to go ... The most courteous dive operation I have ever used ... Roomy and comfortable boat ... Wish they offered more advanced dives ... Staff sets up equipment and even defogs your mask ... Excellent instruction ... Manta ray dive was great ... Great pre-dive briefing and introduction to marine life ... Impressed with their concern for the environment and the safety of divers ... A first-class operation ... Plenty of shade on boats ... Night manta dive—wow! ... Groups were small ... Boat is super, with a hot shower and head and lots of room ... Set me up with a babysitter when our hotel failed to ... Deli lunch ... Good selection of dive sites ... Disliked tip jar.

<b>Overall</b> : B
<b>Staff</b> : A
<b>Boats &amp; Facilities</b> : C+
<b>Value</b> : B

### Ed Robinson's Diving Adventures

P.O. Box 616, Kihei, Maui, HI 96753

**Tel.:** (800) 635-1273, (808) 879-3584

**Fax:** (808) 874-1939

**e-mail:** ROBINSON@MAUL.NET

**internet:** WWW.MAUISCUBA.COM

**Years in Business:** 14. **Fleet:** One 36-foot and one 22-foot



dive boat. **Morning dive:** Two tanks, 6:30 a.m. to 12 or 2:30 p.m., \$104 to \$144. **Night dive:** Thursdays. **E-6 processing:** No. **Nitrox:** No. **Certifying agency:** PADI. **Primary resort affiliation:** None.

**Reader comments** ► Staff was very helpful ... Didn't like meeting and launching from public parking lot ... Boat was fast and in good condition ... Very friendly, professional staff ... No onshore facilities other than a restroom ... They separate advanced from inexperienced divers ... They didn't do videos ... Follow divers with "live boat"—no swim back to the boat after the dive ... Boat was not permanently docked but launched from a trailer ... No place to keep dry ... Dive guides helped me locate the critters I wanted to photograph ... Staff extremely knowledgeable about dive sites ... Best wildlife briefings I have ever seen ... No more than six divers per boat ... Boat ride to and from Lanai very long ... My fiancée's first dive, they made her feel very safe ... Too many people for size of boat ... Matched divers with similar abilities and interests ... Snacks were greasy doughnuts ... Prompt and reliable ... Allow you to dive your computer ... Didn't like 6:30 a.m. starting time ... No storage place for gear ... Provided rain jackets for the wet crossing from Maui to Lanai ... No room to move on boat ... Some very different and interesting dive sites ... Let divers help select sites ... Boat was a little small.

<b>Overall</b> :	<b>C-</b>
<b>Staff</b> :	<b>B</b>
<b>Boats &amp; Facilities:</b>	<b>D-</b>
<b>Value</b> :	<b>D</b>

### Fathom Five Divers

**Address:** P.O. Box 907, Koloa, HI 96756  
**Tel.:** (800) 972-3078, (808) 742-6991  
**Fax:** (808) 332-0204  
**e-mail:** FATHOM@FATHOMFIVE.COM  
**internet:** FATHOMFIVE.COM

**Years in Business:** 16. **Fleet:** Two 26-foot boats. **Morning dive:** Two tanks, 7:30 to 11:45 a.m., \$85 to \$100. **Afternoon dive:** Two tanks, 1 to 5:30 p.m., \$85 to \$100. **Night dive:** Every day except Sunday. **E-6 processing:** No. **Nitrox:** No. **Certifying agency:** PADI. **Primary resort affiliation:** None.

**Reader comments** ► Staff knows area well, knows exactly where to go ... Dives too short ... Very personal ... Boat was way too small even for only six divers ... Staff courteous and friendly ... Dives are tailored to skill level and conditions ... Small groups ... Friendly and fun ... Pre-dive briefing was one of the best I've heard ... Boat small and cramped ... Skilled staff and well organized ... Rental gear looked very worn ... Very small boat without adequate facilities ... Staff was very knowledgeable about the different kinds of marine life ... My money could have been better spent elsewhere.

<b>Overall</b> :	<b>A</b>
<b>Staff</b> :	<b>A+</b>
<b>Boats &amp; Facilities:</b>	<b>A-</b>
<b>Value</b> :	<b>A-</b>

### Jack's Diving Locker

**Address:** 75-5819 Alii Dr., Kailua-Kona, HI 96740  
**Tel.:** (800) 345-4807, (808) 329-7585  
**e-mail:** DIVEJDL@GTE.NET



**internet:** WWW.DIVEJDL.COM

**Years in Business:** 16. **Fleet:** One 38-foot and one 25-foot boat. **Morning dive:** Two tanks, 8:30 a.m. to 2:30 p.m., from \$80. **Afternoon dive:** Two tanks, 3:30 to 9 p.m., from \$85. **Night dive:** Mondays, Wednesdays and Fridays. **E-6 processing:** No. **Nitrox:** Yes (with notice). **Certifying agencies:** NAUI, PADI, SSI. **Primary resort affiliations:** Kona Reef Condos, Royal Kona Resort. **Resorts on-site:** No.

**Reader comments** ► The staff was wonderful, friendly and helpful ... They treat you like an old friend ... Very good value on manta dive ... Top-notch service ... Unhurried ... Rents gear for shore dives ... Snacks and beverages available on boat ... Loved night manta dive ... Nice facilities ... Allowed to dive apart from others ... Dive boat stopped to let us snorkel with dolphins ... Not good for very advanced or extreme diving ... Well thought-out deck layout ... Great pre-dive briefings ... Large, comfortable boat with hot showers ... Liked the one-hour dives

... Very relaxing diving ... I like a little bit bigger boat ... Dive videos are personalized and the best I've ever seen—set to great music and expertly edited ... Staff was helpful about giving out info on weather and shore diving locations, also helpful when we had lots of tanks to be filled ... Mature, professional crew ... Divers told staff what we wanted and expected to see and that's what we got ... The number of people on boat was OK but many were snorkelers or beginners—lots of wait time.

<b>Overall</b> :	<b>B</b>
<b>Staff</b> :	<b>A-</b>
<b>Boats &amp; Facilities:</b>	<b>B</b>
<b>Value</b> :	<b>B-</b>

### Kona Coast Divers

**Address:** 74-5614 Palani Rd., Kailua-Kona, HI 96740  
**Tel.:** (800) KOA-DIVE, (808) 329-8802  
**Fax:** (808) 329-5741  
**e-mail:** DIVEKONA@KONA.NET  
**internet:** WWW.KONACOASTDIVERS.COM

**Years in Business:** 15. **Fleet:** One 42-foot and one 31-foot boat. **Morning dive:** Two tanks, 8 a.m. to 1 p.m., \$74.50. **Night dive:** Mondays, Wednesdays and Saturdays. **E-6 processing:** No. **Nitrox:** Yes. **Certifying agencies:** PADI, SSI, TDI. **Primary resort affiliation:** None.

**Reader comments** ► Crew knows the dive sites and what to see ... Very friendly and helpful ... Staff does everything for you except the actual dive ... Very relaxed ... A great manta night dive ... Experts in training divers ... Parking is tight ... Great boat ... Was able to correspond with staff through e-mail prior to trip ... Professional, safe, knowledgeable ... Good prices on packages ... Boat was overcrowded ... Few amenities on boats ... Often took 45 to 50 minutes from time we were required to report to boat to when we took off ... Provided underwater lights (placed on the ocean floor) for the night manta ray dive ... Took us to the same dive site ... Accommodating ... Patient with beginners and allow more advanced diver flexibility ... Some rented equipment was dated.

<b>Overall</b> :	<b>B</b>
<b>Staff</b> :	<b>B+</b>
<b>Boats &amp; Facilities:</b>	<b>B-</b>
<b>Value</b> :	<b>C-</b>

### Lahaina Divers, Inc.

**Address:** 143 Dickenson St., Lahaina, HI 96761  
**Tel.:** (800) 998-3483, (808) 667-7496  
**Fax:** (808) 661-5195  
**e-mail:** LAHDIVER@MAUI.NET

**internet:** WWW.LAHAINADIVERS.COM

**Years in Business:** 20. **Fleet:** One 50-foot and one 43-foot boat. **Morning dive:** Two tanks, 6:30 a.m. to 12 p.m., \$105. **Afternoon dive:** Two tanks, 12:30 to 5 p.m., \$85. **Night dive:** Mondays and Thursdays. **E-6 processing:** No. **Nitrox:** No. **Certifying agencies:** NAUI, PADI, SSI, YMCA. **Primary resort affiliations:** Maui Islander, Outrigger Hotels. **Resorts on-site:** No.

**Reader comments** ► Very friendly and professional ... Nice boats ... Expensive ... Nice shop ... Staff was knowledgeable, helpful ... Knows waters well ... Good selection of dive sites ... Small groups made for personal attention ... Roomy boat ... Continental breakfast, deli and barbeque lunch ... Too restrictive for experienced divers ... They set up BCs and regulators ... Seemed genuinely interested in providing us with good diving ... Too many divers on boat ... Not located at docks ... Great for beginners ... Small dive boats ... Tend to cater to new divers ... Staff was very helpful in informing us about marine life and pointing out things under water ... Very large, clean boat ... Very organized operation ... Staff carries all gear ... They restricted bottom times ... For my first dive after becoming certified, I felt very safe ... We had to wait at the dive shop 30 to 45 minutes from the time we were told to arrive until we left for the boat.

## Palau

<b>Overall</b> :	<b>B+</b>
<b>Staff</b> :	<b>A</b>
<b>Boats &amp; Facilities:</b>	<b>C+</b>
<b>Value</b> :	<b>B+</b>

### Sam's Dive Tours

**Address:** P.O. Box 428, Koror, Republic of Palau 96940  
**Tel.:** (011) 680-488-1062



**Fax:** (011) 680-488-5003

**e-mail:** SAMSTOUR@PALAUNET.COM

**internet:** WWW.SAMSTOURS.COM

**Years in Business:** 10. **Fleet:** Four 29-foot and one 26-foot boat. **Dives:** Full-day trip, 9 a.m. to 4:30 p.m., \$99. **Night dive:** On request. **E-6 processing:** Yes. **Nitrox:** Yes. **Certifying agencies:** PADI, TDI. **Primary resort affiliation:** West Plaza Hotels. **Resort on-site:** No.

**Reader comments** ▶ Good, experienced local captains, personable divemasters ... I would have liked to have been in the water more for the amount of money I paid ... Excellent dive briefings ... Divers not allowed to choose dive sites ... The boat was fast and clean ... Good dive briefings ... Snorkelers with divers get little attention ... I had camera problems and the staff went out of their way to help me ... Friendly and likable staff with abundant knowledge of dive sites and Palau waters ... Max eight people on dive boat ... Boat wasn't comfortable for the one-hour trip to the dive site ... Adjusted itinerary daily to get you the best experience ... No head or shower on boats ... Small parties, reasonable cost ... Boats left late ... Good sea kayaking operation, too ... Fast boats, good sites, challenging dives, good lunches included ... Morning drill was a little disorganized ... No big hurry ... Rental gear is inexpensive ... Boats have few amenities ... Hotel pick-up/drop-off ... I liked their flexibility ... Advertises "maximum eight divers per boat" but the boats were often overcrowded.

## LIVE-ABOARDS

<b>Overall</b>	<b>: A</b>
<b>Staff</b>	<b>: A</b>
<b>Boat</b>	<b>: A</b>
<b>Food</b>	<b>: A</b>
<b>Value</b>	<b>: A+</b>

### Hawaii

#### Kona Aggressor II

**Address:** P.O. Box 1470, Morgan City, LA 70381

**Tel.:** (800) 348-2628, (504) 385-2628

**Fax:** (504) 384-0817

**e-mail:** DIVBOAT@AOL.COM

**internet:** WWW.AGGRESSOR.COM

**Length:** 80 feet. **Cabins:** 5. **Accommodates:** 10. **Private baths:** Yes. **Air-conditioning:** Yes. **Max. number of dives per day:** Unlimited. **E-6 processing:** Yes. **Nitrox:** Yes.

**Reader comments** ▶ Great accommodations ... Training courses offered were excellent ... Great boat, great crew ... The boat is gorgeous ... Food was incredible, gourmet ... An almost magical experience ... Crew went out of their way to be helpful ... Crew never stopped working ... The food was sensational.

## Palau

<b>Overall</b>	<b>: A</b>
<b>Staff</b>	<b>: A</b>
<b>Boat</b>	<b>: A+</b>
<b>Food</b>	<b>: A-</b>
<b>Value</b>	<b>: A+</b>

#### Palau Aggressor II

**Address:** P.O. Box 1470, Morgan City, LA 70381

**Tel.:** (800) 348-2628, (504) 385-2628

**Fax:** (504) 384-0817

**e-mail:** DIVBOAT@AOL.COM

**internet:** WWW.AGGRESSOR.COM

**Length:** 106 feet. **Cabins:** 8. **Accommodates:** 16. **Private baths:** Yes. **Air-conditioning:** Yes. **Max. number of dives per day:** 4 to 5. **E-6 processing:** Yes. **Nitrox:** Yes.

**Reader comments** ▶ Expansive dive deck ... excellent photo service ... New boat, very nice layout ... Warm towels on the dive boat and the big boat upon returning from a dive were very nice ... Ample space for camera equipment and to suit up ... E-6 processing very good ... Boat was very stable because of its design ... Small breakfasts ... Beautiful, state-of-the-art boat in the most incredible setting in the world ... Food was outstanding and plentiful ... Crew let us dive to our ability ... Staff eager to please ... Boat was always immaculate ... We got more dives in a day than I thought possible ... The food gets a "10" ... I did not like the dive skiff.

<b>Overall</b>	<b>: A</b>
<b>Staff</b>	<b>: A</b>
<b>Boat</b>	<b>: A+</b>
<b>Food</b>	<b>: A+</b>
<b>Value</b>	<b>: A</b>

### Peter Hughes' Sun Dancer II

**Address:** c/o Peter Hughes Div-ing, 1390 S. Dixie Hwy., Suite 1109, Coral Gables, FL 33146

**Tel.:** (800) 9-DANCER, (305) 669-9391

**Fax:** (305) 669-9475

**e-mail:** DANCER@PETERHUGHES.COM

**internet:** WWW.PETERHUGHES.COM

**Length:** 138 feet. **Cabins:** 10. **Accommodates:** 20. **Private baths:** Yes. **Air-conditioning:** Yes. **Max. number of dives per day:** 5. **E-6 processing:** Yes. **Nitrox:** Yes.

**Reader comments** ▶ Boat and crew were fantastic ... Great to have nitrox on-board ... Crew went out of their way for our group ... Boat is spacious, comfortable and in good condition ... Had to take a small tender to dive sites ... Very good food ... All the details were covered: sit-down dinner service, individual climate control in rooms, coffee and wake-up in the morning ... Can't be topped for service, amenities, safety ... Best physical setup of the eight live-aboards I've been on ... Chase boats superb.

## Truk

<b>Overall</b>	<b>: A</b>
<b>Staff</b>	<b>: A+</b>
<b>Boat</b>	<b>: A-</b>
<b>Food</b>	<b>: A</b>
<b>Value</b>	<b>: A-</b>

#### Truk Aggressor II

**Address:** P.O. Box 1470, Morgan City, LA 70381

**Tel.:** (800) 348-2628, (504) 385-2628

**Fax:** (504) 384-0817

**e-mail:** DIVBOAT@AOL.COM

**internet:** WWW.AGGRESSOR.COM

**Length:** 110 feet. **Cabins:** 7. **Accommodates:** 14. **Private baths:** Yes. **Air-conditioning:** Yes. **Max. number of dives per day:** 4 to 5. **E-6 processing:** Yes. **Nitrox:** Yes.

**Reader comments** ▶ Amazing, awesome adventure ... I never expected this kind of treatment, service and diving ... Local, experienced divemasters ... Nitrox capacity limited ... Good food ... Bathrooms in each room ... The crew was great—they made us feel like family ... Too rigid on schedule ... Deep dives were organized very safely ... They went out of their way to make sure we dived the wrecks we wanted ... Guided us when appropriate, but stayed out of the way so we could enjoy ourselves ... Balanced safety and enjoyment flawlessly ... Nitrox available ... Thorough knowledge of dive sites ... Boat design/set-up perfect ... I liked the spaciousness of the boat and the overall quality of the living conditions ... Catered to special dietary requests.

## RESORTS

### Fiji

<b>Overall</b>	<b>: B+</b>
<b>Service</b>	<b>: A+</b>
<b>Rooms &amp; Facilities</b>	<b>: C+</b>
<b>Restaurant</b>	<b>: A+</b>
<b>Value</b>	<b>: B+</b>

#### Garden Island Resort

**Address:** P.O. Box 1, Waiyevo, Taveuni, Fiji

**Tel.:** (800) 541-4334, (011) 679-880-286

**Fax:** (011) 679-880-288

**e-mail:** GARDEN@IS.COM.FJ or

INFO@AQUATREK.COM

**internet:** WWW.AQUATREK.COM

**Price of double per night:** \$84. **Number of rooms:** 30. **Restaurant on premises:** Yes. **Scheduled activities for kids:** No. **Babysitting:** Yes. **Waterfront property:** Yes. **Rooms have phones:** No. **Air-conditioning:** Yes. **Credit cards:** Visa, MasterCard, American Express. **Dive operation on premises:** Rainbow Reef Divers.

**Reader comments** ▶ Close to dive center ... Flowers in room every day ... Geared to divers' needs ... Rooms are clean and comfortable ... Pool



and deck are great ... Beds too small ... The best bargain in Fiji ... Functional, efficient and very well kept up ... Staff is friendly and helpful ... Many sports and social activities ... Peaceful ... All rooms face the ocean and have nice views ... Excellent service and food ... Plenty of hot water and 24-hour electricity ... Good meals and a good bargain ... Good package deals ... Quiet ... Upgrading was being done when we were there and it was a little messy ... No beach.

## Yap

<b>Overall :</b>	<b>B-</b>
<b>Service :</b>	<b>B</b>
<b>Rooms &amp; Facilities :</b>	<b>C+</b>
<b>Restaurant :</b>	<b>B</b>
<b>Value :</b>	<b>C</b>

**Internet:** WWW.MANTARAY.COM

**Price of double per night:** From \$134 per night, including diving. **Number of rooms:** 23. **Restaurant on premises:**

Pacific In A Nutshell	French Polynesia			Palau			Papua New Guinea			Taveuni, Fiji			Truk			Yap		
	READERS LOVED	RANK IN THE WORLD	NOT KNOWN FOR	READERS LOVED	RANK IN THE WORLD	NOT KNOWN FOR	READERS LOVED	RANK IN THE WORLD	NOT KNOWN FOR	READERS LOVED	RANK IN THE WORLD	NOT KNOWN FOR	READERS LOVED	RANK IN THE WORLD	NOT KNOWN FOR	READERS LOVED	RANK IN THE WORLD	NOT KNOWN FOR
FISH LIFE				✓	2		✓	8		✓	5							
VISIBILITY	✓	9		✓														
HEALTH OF MARINE ENVIRONMENT				✓	6		✓			✓						✓		
BIG ANIMALS	✓	6		✓	3						✓					✓	4	
WRECK DIVING			✓			✓		✓		✓	✓	1						✓
WALL DIVING			✓	✓	3		✓							✓				
SNORKELING	✓	2						✓						✓				✓
SHORE DIVING			✓				✓			✓			✓					✓
NIGHT DIVING							✓	6					✓	2				
DRIFT DIVING			✓	✓	3					7					✓	✓	5	
BEGINNER DIVING								✓		✓								✓
ADVANCED DIVING	✓			✓	3					✓	8		✓	4		✓	1	
PHOTOGRAPHY	✓			✓	4					✓	10		✓	5		✓		
TOPSIDE						✓			✓		✓							
VALUE				✓	5					✓	8							

## Manta Ray Bay Hotel

**Address:** P.O. Box MR, Yap, Federated States of Micronesia 96943

**Tel.:** (800) DIVE-YAP, (011) 691-350-2300

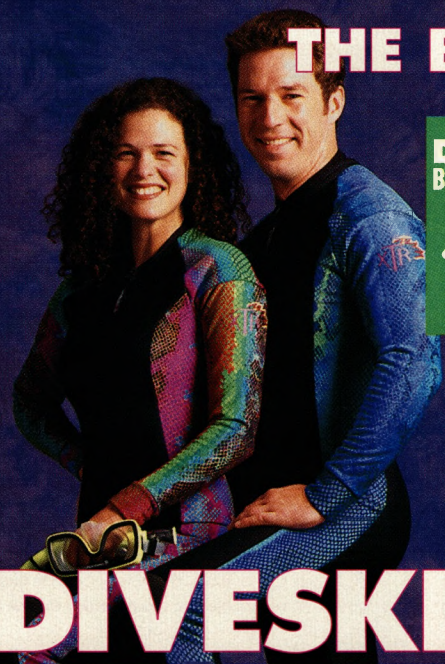
**Fax:** (011) 691-350-4567

**e-mail:** YAPDIVERS@MANTARAY.COM

**es:** Yes. **Scheduled activities for kids:** Yes. **Babysitting:** Yes. **Waterfront property:** Yes. **Rooms have phones:** Yes. **Air-conditioning:** Yes. **Credit cards:** Visa, MasterCard, American Express. **Dive operation on premises:** Yap Divers.

**Reader comments** ▶ Very comfortable ... Run by divers, for divers ... Restaurant very pricey ... Best food I had on a 20-day trip of Guam, Palau, Truk and Yap ... Convenient to dive boat ... Super hotel/dive packages ... Lots of amenities usually only found in larger hotels ... Staff was very helpful and accommodating ... Non-diving activities limited.

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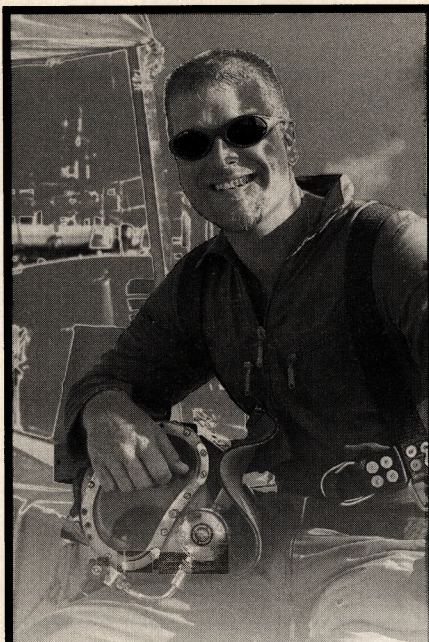
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## Palau

<b>Overall :</b>	<b>B+</b>
<b>Service :</b>	<b>B</b>
<b>Rooms &amp; Facilities :</b>	<b>A</b>
<b>Restaurant :</b>	<b>B-</b>
<b>Value :</b>	<b>C</b>

### Palau Pacific Resort

**Address:** P.O. Box 308, Koror, Republic of Palau 96940  
**Tel.:** (800) 327-8585, (011) 680-488-2600

**Fax:** (011) 680-488-1601

**e-mail:** PPR@PALAUNET.COM

**internet:** WWW.PANPAC.COM

**Price of double per night:** Unavailable at press time. **Number of rooms:** 160. **Restaurant on premises:** Yes. **Scheduled activities for kids:** No. **Babysitting:** Yes. **Waterfront property:** Yes. **Rooms have phones:** Yes. **Air-conditioning:** Yes. **Credit cards:** Visa, MasterCard, American Express, Diners Club. **Dive operation on premises:** Splash Dive Center.

**Reader comments** ► Outstanding location and grounds ... Very clean and neat ... A bit expensive ... Staff needs training in customer service ... Great service and excellent facilities ... Great snorkeling off the beach ... On-site food was mediocre and everything was very expensive ... I liked the ocean view ... Great food ... Reasonable prices in restaurants ... Airport pick-up/drop-off ... Great bar ... Private beach ... Not much to do outside of diving ... On-site dive shop and photo shop ... Excellent food packages with rooms ... A first-class resort ... Worth the price ... Dive operators come to dock to pick you up ... Staff was helpful and friendly ... Hot tubs out-

## COMPUTER SAFETY

(Continued from page 80)

to read them thoroughly before attempting to dive with the computer. The irony is that many sets of instructions are frustratingly unclear and excessively laborious. This is one reason why it is helpful to make your own set of notes on how to use your dive computer and add it to your dive log.



With an increasing need to supply more in-

formation, especially in nitrox-ready computers, some dissimilar data may share the same space in different functional modes. Some values may be displayed without a decimal point when in fact the number is a decimal fraction, such as when an oxygen partial pressure of 1.2 is shown as 12. Take care when reading your computer to look directly down at it. If you view it at an angle, you may see incorrect readings. ☹

*Note: All references that cite a particular manufacturer's methodology are based on the computers evaluated in "Generation EANx," page 65. These same manufacturers may have other models that function differently.*

doors were great ... Transport to/from airport rather chaotic ... No nightlife, no room TV.

## Truk

<b>Overall :</b>	<b>C</b>
<b>Service :</b>	<b>C-</b>
<b>Rooms &amp; Facilities :</b>	<b>C-</b>
<b>Restaurant :</b>	<b>C-</b>
<b>Value :</b>	<b>C-</b>

### Truk Continental Hotel

**Address:** P.O. Box 340, Weno, Chuuk, Federated States of Micronesia 96942

**Telephone:** (011) 691-330-2727

**Fax:** (011) 691-330-2439

**e-mail:** TRUKHOTEL@MAIL.FM

**internet:**

WWW.DIVEGUIDEINT.COM/P0650.HTM

**Price of double per night:** \$122 to \$125, plus 10 percent tax. **Number of rooms:** 54. **Restaurant on premises:** Yes. **Scheduled activities for kids:** No. **Babysitting:** Yes. **Waterfront property:** Yes. **Rooms have phones:** Yes. **Air-conditioning:** Yes. **Credit cards:** Visa, MasterCard, American Express, Diners Club. **Dive operation on premises:** Blue Lagoon Dive Shop.

**Reader comments** ► Liked location on the island and the beauty of the grounds ... Resort is old and needs to be updated ... Clean sheets, good water, air-conditioning ... Overpriced ... Great setting ... Within walking distance of a good Japanese restaurant ... Food soggy and tasteless. ☹

## Bells and Whistles

**Temperature Gauges**► The temperature gauge is the least accurate function in a dive computer. Do not be concerned if yours and your buddy's temperature readings differ by two to six degrees. The function of these gauges is unrelated to the other functions of the computer.

**Personal Computer Interfaces**► Many dive computers have interfacing kits available so you can transfer, store and print your dive profiles from a personal computer. All of these programs work and have improved since we last tested dive computers. However, they remain primitive and often have considerable bugs. Every single interface we have ever tested, including the best two from Oceanic and UWATEC, have had operational or set-up problems that required contacting the manufacturer to solve.

**Dive Simulators**► A dive simulator, sometimes called planning mode or planner, is a program that allows you to play "what if" games on your dive computer. The simulators are generally difficult to use and not practical for recreational diving. Perhaps the greatest value of a dive computer is that it makes flexible, multi-level diving possible and realistic with reduced risk. Unless a recreational diver is diving square profiles, there is very little likelihood that he would, or even could, follow a planned dive done in simulation.

Simulators also do not account for the real time of ascents and descents or the in- and outgassing that occurs during these changes. Nor is there any consideration of available gas supply.





Lying 500 miles south of Miami and just west of Cuba, the Cayman Islands are but tiny specks in the Caribbean Sea, the jutting peaks of a huge undersea mountain range. For divers, that means deep, clear waters that just happen to be some of the most fish-filled in the world.

Indeed, Grand Cayman, Little Cayman and Cayman Brac put their marine life on display like nowhere else. And divers certainly appreciate it. In poll after poll of *RSD* readers, the Cayman Islands score near the top in every important category: health of the marine environment, wall diving, shore diving, fish life, photography and advanced diving. Furthermore, the islands' dive operators are consistently ranked among the Caribbean's best.

# The Cayman Islands

## grand and glorious

Superb diving and excellent service make an ideal combination, and there's no better place to find the two together than in the Cayman Islands.

### Grand Cayman

Grand Cayman is a mere 22 miles in length and only eight miles across at its widest point. That's not much territory to cover—unless you're trying to swim it. Then the island seems as large as the Great Barrier Reef, and becomes just as impossible to explore thoroughly.

From a diver's point of view, Grand Cayman is unique. Not only is its shoreline worth investigating, but the island offers unusually varied conditions, from shallow reefs to deep walls to wrecks. And if that isn't enough, there are also lots of big animals, from the famous southern stingrays at Stingray City to the schooling tarpon at Tarpon Alley and Eden Rock.

One of the favorite dive choices on Grand Cayman is the magnificent North Wall, which starts at about 65 feet and bottoms out several thousand feet down. Few walls are as rich in corals, sponges and fans.

The great North Wall is well populated with long red finger sponges which are the island's underwater trademark. These strawberry-red sponges are rarely found in such profusion anywhere else. Even more noticeable down deep are the unusually big sea fans projecting from the wall. These spade-shaped formations are almost as wide as most divers are tall.

When wind conditions make reaching the North Wall difficult, protected West Bay off Seven Mile Beach is normally as calm as a swimming pool. The West Bay sites, at times some of the most dived areas because of their ideal conditions, are only a few minutes' boat ride away.

Good shallow diving from the beach is found just to the east of George Town Harbour, off the ironshore coast. This region is normally peaceful and calm enough for easy entry and exit.



Grand Cayman's least dived area is the East End, which has the fewest dive operations and is furthest from George Town. You can dive the pristine sites on the East End with several operators or you may just want to stay there. Divers who concentrate on the East End often stay in that area for convenience sake. East End divers are often those who prefer to be away from the more crowded regions. They also tend to be people who've already spent a lot of time on Grand Cayman and seen the major sites.

The underwater terrain differs significantly from one section of the island to the next, and dive operators tend to be pretty good about exploring around the island. However, you can maximize your mobility by boarding different boats in different destinations. Most operators do their heavy diving early, offering two tanks in the morning and one in the afternoon.

## Cayman Brac

If you want to see what Grand Cayman was like 20 or 30 years ago, dive Cayman Brac, roughly 90 miles to the northeast of Grand Cayman. This 12-by-one-mile-long landfall is flat and low, except at the eastern end where the 140-foot high bluff (or "brac" in Gaelic) divides the island in half lengthwise.

Many of the Brac's marked dive sites are

near the island's western tip, which is also where the dive resorts are located. You will find some excellent beach diving, and boat trips typically take only five to 10 minutes for most spots. Those interested in shallow reef photography will find the Brac outstanding.

Accessible from shore but more typically visited by boats is a 330-foot former Soviet destroyer sunk as a dive attraction in 1996. Renamed the *MV Capt. Keith Tibbetts*, this is one of the world's best shallow wreck dives. The ship decks are slowly transforming into a living reef as sponges and tiny corals take hold. However, it will be many decades before the outline of this impressive ship—with cannons mounted fore and aft—disappears into the seascape. As many photographers will testify, the *Tibbetts* is a magnificent photo prop. But don't overlook



PHOTO BY WAYNE HASSON

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the *Cayman Mariner*, a 65-foot metal work boat deliberately sunk for divers in 55 feet of water, which often has large fish hanging in and around it.

Wall diving on both sides of the Brac is superb. The South Wall contains particularly large and odd-shaped sponges, including huge orange elephant ears. At the North Wall, some of the most popular standouts are Airport Wall and East Chute, both vertical dropoffs starting at 65 feet. Big sponges are another outstanding feature at Cemetery Wall, while grunts, snappers, scorpionfish and a host of tiny critters inhabit Grunt Valley.

## Little Cayman

A seven-mile-wide channel separates Little Cayman from the Brac, a jaunt short enough that boats often make the crossing when the seas are calm. At only 10 miles long and two miles wide, Little Cayman is a narrow strip of land that is still mostly undeveloped and, until only about a decade ago, the island had fewer than two dozen full-time residents.

Little Cayman has what many consider to be the Caribbean's finest wall diving, bar none. It's at Bloody Bay and Jackson's Reef and Wall, where the dropoff begins at an incredibly shallow 18 feet, then falls quickly to 1,200. Every type of Caribbean coral and sponge you've ever wanted to see thrives in Bloody Bay in all colors and sizes and in superb condition. It is one of the best sites in the world for dramatic underwater wall photos.

The top of the wall typically is composed of hard corals and sponges and lots of diver-friendly fish right on the edge. The steep wall itself is characterized by small caves and ledges. One spot known as the Mixing Bowl boasts quite a few grouper, triggerfish and horse-eye jacks always ready to pose.

If the pace of life on the Brac is slow, Little Cayman offers the *ultimate* in total relaxation. A snooze between dives in a hammock is a most popular pastime.

## Pack Light

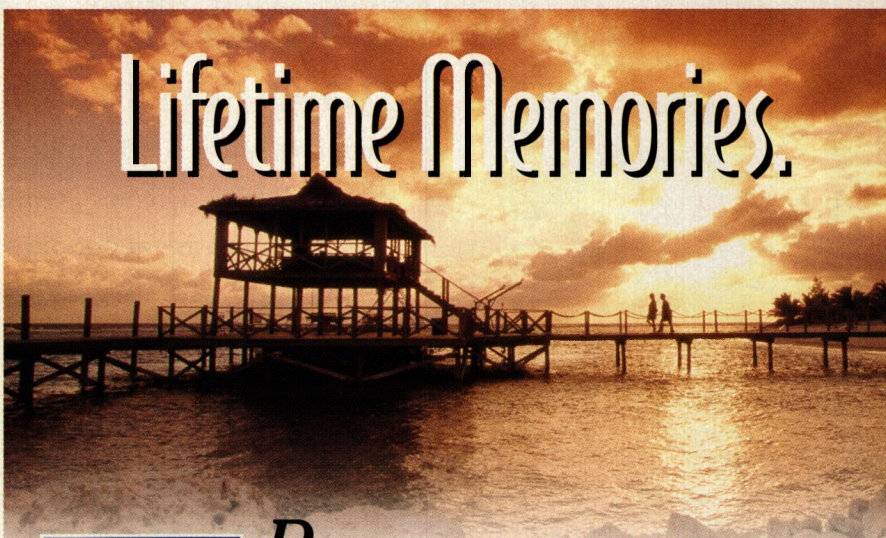
Winter air temperatures in the Cayman Islands vary between 70 and 85 degrees, not an appreciable drop from the summer range of 80 to 90 degrees. Winter water temps are normally a pleasant 80 to 84 degrees, with summer a slightly warmer 84



Little Cayman Beach Resort is recognized throughout the world for offering one of the most dramatic diving experiences on the planet. Which is why it's so darn gratifying that many of our guests come back, year after year, season after season, just because of our food. Isn't it time you had a taste of paradise?

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to 86 degrees. A wetsuit is advisable for winter, not so much because of the water but the winds generated by deteriorating cold fronts flowing down from the U.S. mainland. No matter what the conditions or time of year, you can count on diving almost every day.

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This 110' luxury live-aboard holds a maximum of 18 divers and five crew members. Like all Aggressor vessels, it offers the ultimate in diving services including Nitrox, rebreathers, E-6 processing, private dive lockers, a large dive platform and dive deck, rental equipment and instruction. Eight private, air-conditioned cabins, a hot tub and sun deck and sumptuous meals are just a few

of the non-diving extras.

Ask about the *Cayman Aggressor III*'s special charters hosted by Jean-Michel Cousteau, Stan Waterman and Jim Church. 800-348-2628, fax: 504-384-0817, e-mail: [divboat@aol.com](mailto:divboat@aol.com), web: [www.aggressor.com](http://www.aggressor.com)



### Sunset House

grand cayman

Sunset House is a diver's sanctuary — a resort built for divers by divers. They not only offer excellent shore diving with a coral reef boasting modern and ancient shipwrecks in shallow water right off shore, but also six boats which visit sites on all sides of the island allowing Sunset Divers to meet the wants and needs of all its guests. PADI, NAUI, SSI, NASDS and HSA instruction is also offered.

Sunset House accommodations include two apartments and 57 standard, deluxe and oceanview rooms, all with private bath, balcony, air-conditioning and cable tv. Other resort amenities include Sunset's Seaharvest restaurant, an oceanside bar with a "killer view" of the Caribbean sunsets, freshwater pool, jacuzzi and photo centre.

Rates range from \$174 to \$240 per night in the winter season and \$138 to \$192 in the summer. 888-281-3826, fax: 305-451-5147, e-mail: [phototours@aol.com](mailto:phototours@aol.com)



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### grand cayman



of diving (2-tank boat dives per day), three meals daily, transfers, hotel taxes and gratuities — all for \$1,169 pp/do. (Discounted airfare is available from all major gateways.) PLUS, you'll have a chance to win snorkel sets, underwater cameras, wet suits and more!

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### grand cayman (east end)

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800-544-6576, fax: 345-947-7600, e-mail: [oceanf@candw.ky](mailto:oceanf@candw.ky), web: [www.oceanfrontiers.com](http://www.oceanfrontiers.com)

## Experience the Adventure Tours

### cayman brac

Experience the Adventure Tours is offering a Cayman Brac Dive Extravaganza during the weeks of May 16 and May 23, 1998. This special package includes round trip airfare from Miami via Cayman Airways, accommodations for seven nights, 5 days



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## Brac Reef Beach Resort

cayman brac

Reef Divers II at Brac Reef Beach Resort and its sister operation on Little Cayman were both named top dive operators in the Caribbean/Atlantic in the 1998 *Rodale's* Readers' Choice Awards. These diver-friendly operations offer world-class facilities and the highest of safety standards.

Brac Reef Beach Resort not only boasts the most outstanding diving you'll find at the *Keith Tibbetts* wreck and on Bloody Bay Wall, but it offers the utmost in vacation relaxation. 40 deluxe rooms are surrounded by tropical foliage and landscaped gardens. The Coral Gardens Restaurant offers casual dining with delicious buffet-style meals. The Channel Lounge is a poolside bar overlooking the beach. Brac Reef also offers meeting and banquet facilities, tennis, bicycles, freshwater pool and jacuzzi, sailboats, paddleboats and kayaks.

April 18-December 18, 1998, a 7-night diving package which includes accommodations, diving, meals and more is \$1,269 pp/do.

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## Don Foster's Dive Cayman

grand cayman

Don Foster's Dive Cayman offers you "the vacation of a lifetime!" Whether you're a beginner or an advanced diver, their professional staff is more than qualified to assist you. You will see breathtaking walls, famous wrecks and an abundance of marine life. Don Foster's fleet of five dive boats features camera tables, fresh water, rinse buckets, dry storage and easy entry/exit. The boats make daily trips to North Wall, West Wall and Stingray City.

Don Foster's has two locations including the Holiday Inn on the Beach, plus the George Town Harbour facility. Don Foster's also offers vacationers a full range of watersports toys and a photo center.

Ask about their special packages and group rates.

800-83-DIVER(34837), fax: 345-945-5133, e-mail: dfd@candw.ky, web: <http://www.donfosters.com>



## Treasure Island Divers

grand cayman

Rated by *Rodale's Scuba Diving* readers as having one of the top ten day boats in the world, Treasure Island Divers prides itself on excellent service: limited number of people on each boat; no cruise ship divers to impose scheduling problems; divers choose the dive sites; and, once you've checked in, you never have to touch your gear again!

Treasure Island Divers is located on the south end of Seven Mile Beach and is the only dive shop with a dock on the beach. The attitude of the highly motivated staff is: "If we can offer a vacation experience that not only lives up to, but exceeds our customers' expectations, then we have accomplished our goal."

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## Cayman Diving Lodge

grand cayman (east end)

Cayman Diving Lodge is a small, full-service, all-inclusive dedicated dive resort located beachfront on Grand Cayman's secluded East End. The best diving in the Caymans is their front yard.



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This 10-room resort is perfect for the diver who wants a truly personalized dive vacation. A private beach, air-conditioned rooms, open-air beachfront dining and bar, two spacious dive boats including a brand new Pro-48, complete videography services and all levels of PADI instruction are just a few of the Lodge's features. Their staff of eight instructors and one chef live on-site and are available to you from sun up to sun down . . . you never touch your gear at Cayman Diving Lodge — except to dive!

Ask about their all-inclusive, 3-tank per day packages. 800-TLC-DIVE/806-794-3466, fax: 806-798-7568, e-mail: [dive lodge@aol.com](mailto:dive lodge@aol.com), web: <http://www.divecdl.com>

### *Seaview Hotel and Dive Center* grand cayman

This small, friendly, 15-room resort is the oldest in Cayman. Seaview Hotel and Dive Center offers divers a full-service dive shop with lockers, rinse tanks, photo services, a full range of PADI courses and rebreather instruction. The resort also features a restaurant and pool. The price per night, which includes accommodations, a two-tank boat dive, shore diving, breakfast and transfers, is \$110 pp/do in high season and \$99 in low season.

345-945-0558, fax: 345-945-0559, e-mail: [seadive@candw.ky](mailto:seadive@candw.ky), web: [www.diveguideint.com/seaview](http://www.diveguideint.com/seaview)



## Southern Cross Club

little cayman

The Southern Cross Club is a unique resort with only 11 air-conditioned cottages spread over 800 feet of beautiful beach. Uncrowded dive boats, fantastic food and first rate service bring their guests back time and time again.

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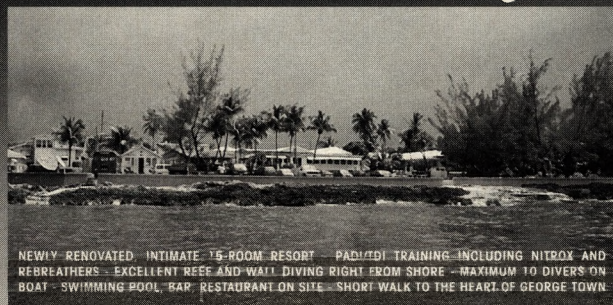
\$1,366 from May 1, 1998 through December 15.

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# Rebreather Revolution?

**They promise the freedom of bubbleless stealth and marathon bottom time. Is there one in your future?**

► by **BUCKY McMAHON**

**F**inally it's here: 1998—the year recreational rebreathers will achieve cost parity with top-of-the-line open-circuit scuba sets. But while the dozen or so companies positioning themselves to meet the demand are eager to share their technology, they are also highly cautious about the outcomes. Why? You can take the rebreather out of the military, but can you take the military out of the rebreather user without anybody getting hurt? Or, as one expert put it, "How do we make this beautiful apparatus safe for some of the turkeys who will come and buy it?"

## Gobble, Gobble, Toil and Trouble

On the first day of my rebreather certification course, I practiced taking the Atlantis 1 unit apart and putting it back together again. And again. And again. TDI instructor J.D. Duff of South Florida's Palm Beach Scuba Club had me do it over and over, as if I were a Navy SEAL training for combat.

The analogy is apt. Rebreather technology evolved within the military culture—a world of checklists and routines, of disciplines and supervision and strict penalties for negligence or carelessness. It's no accident that other successful rebreather users have included marine scientists—methodical and painstaking souls, also often backed by institutions—and cinematographers and professional photographers, whose stock-in-trade is tirelessly tinkering with sophisticated machinery.



THE STRANGEST SENSATION WHEN DIVING WITH A REBREATHER IS THE ABSENCE OF EFFORT, THE SENSE THAT YOU'RE NOT DOING ANYTHING TO GET AIR.

## Book It

**General Training for Closed Circuit Rebreather Scuba Diving**, \$40. Available through AURA, P.O. Box 68272, Seattle, WA 98168, tel/fax (206) 341-9187.

**Proceedings of Rebreather Forum 2.0**, Sept. 1996. Available from PADI's Diving Science and Technology (DSAT), for \$29.95. Call DSAT (800) 729-7234, ext. 525, or e-mail: DSAT1@aol.com.

**The Simple Guide to Rebreather Diving**, available at scuba retailers throughout the U.S. or directly from Best Publishing at (800) 468-1055.

But I'm Joe Diver, and so are most of you. Are we truly ready for rebreathers—their complexity, their need for tender, loving technical care after each dive, our own need for substantial advanced training? By the time I mastered my unit's anatomy, taking it apart and reassembling it until I could almost do it blindfolded, I had learned my first lesson: owning and safely using even the friendliest of today's rebreathers—the Atlantis 1—requires a level of commitment and technical expertise only a handful of recreational divers are ready for.

DOUG PERRINE



## About that PO<sub>2</sub> Business Again...?

"The risk of fatality with rebreathers is significantly greater than with open-circuit," says Tom Mount, head of International Association of Nitrox and Technical Divers. "That's if you don't watch what you're doing. When you get cocky, it's dangerous."

The major source of that risk is the toxic nature of oxygen at high or low partial pressure. If you're breathing a gas mix containing a partial pressure of oxygen (PO<sub>2</sub>) that is too low, you might as well be trudging up the summit of Mount Everest—you'll go hypoxic from oxygen starvation and possibly lose consciousness, with little warning. If you're breathing a mix containing a PO<sub>2</sub> that is too high for your depth and time spent there, your body will respond to the rich oxygen dose with central nervous system (CNS) toxicity, which causes convulsions, unconsciousness, and likely drowning.

Because compressed air contains too little oxygen to be successfully recycled, all rebreathers use oxygen-rich mixes, either nitrox (enriched air nitrox or EAN) or oxygen plus a diluent gas. A semi-closed-circuit system (SCR) like the Atlantis 1 works with a single cylinder of EAN, recycles a portion of each

breath through a carbon dioxide absorbent, then vents the excess. A fully closed-circuit rebreather (CC) typically employs two cylinders, one of pure oxygen and another containing the diluent gas, which the apparatus electronically adds to the oxygen to maintain a partial pressure appropriate to the depth of the dive. With a CC rig, all of the gas is recycled and the unit vents only on ascent.

Tom Mount specializes in teaching the Cis-Lunar unit, a fully closed-circuit system with "all the bells and whis-

les"—it's fully electronic, features heads-up display, computers, back-up computers, and a triple fail-safe bail-out system. That complexity is reflected in a high price tag (about \$15,000), high maintenance demands and a steep learning curve. To fly one of these babies, you need at least 200 open-circuit dives under your belt, a technical nitrox course (all rebreather courses have basic nitrox as a prerequisite), a basic rebreather course, plus an eight-day unit-specific course on the Cis-Lunar. Still got that hand on your wallet?

While most rebreathers still belong to a few nations' armed forces—who employ them for their bubbleless stealth and their ability to make a small supply of gas go a long way—in the last year the Atlantis 1 (now called the Dräger Dolphin) has led the commercial crossover into recreational diving. Already some 10,000 recreational divers, on live-aboards and at resorts and dive shops around the world, have been certified to fly the Atlantis.

## KISS: Keep It Simple, Stupid!

A semi-closed-circuit system like the Atlantis 1 has no electronics, no solenoids or sensors to flood and crap out on you. No batteries are required. In that regard it's a simpler unit than a fully closed one.

Which isn't to say it's not subtle. The mechanical brain of the Atlantis is its first stage, which delivers a constant mass of pre-mixed EAN, independent of depth. This means two things: one, your maximum operating depth (MOD) is determined by your EAN mix (the higher the oxygen content, the shallower the MOD); and two, the PO<sub>2</sub> is linked dynamically with the volume of oxygen inspired. The harder you work (swimming against a strong current, for example) the harder you breathe, and thus the lower the PO<sub>2</sub> in the breathing bag.

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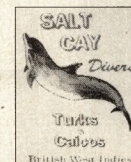
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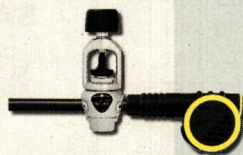
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photo by Ray Mains



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\* Rodale's *Scuba Diving* Readers' Choice Awards — Jan/Feb 1998

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This translates into a risk of hypoxia, especially at shallow depths and on ascent, as in the familiar shallow-water blackout syndrome. Managing hypoxia risk is the crux of the SCR course; it's the art of SCR diving, and you'll want to think long and hard about this bit of physics and physiology before your first light test.

### So, What's It Really Like?

Finally, I was giant striding into the blue Atlantic off Palm Beach, then kicking toward a reef some 65 feet below. Rapidly increasing pressure flattened out the flexible counterlung, and I heard the slight sibilant hiss of the demand valve kicking on to refill it. As I leveled off, sound ceased. I could hear only the whoosh of gas through the wide-diameter breathing hoses as I pushed it nearly effortlessly through the respiratory loop. Because the volume of gas in this loop is practically constant, buoyancy doesn't vary with inhalation and exhalation. No more rhythmic rise and fall; just steady as she goes, which takes some getting used to.

More streamlined than open-circuit, the SCR invites a few barrel rolls, with interesting consequences. When you swim looking up toward the surface, the slightly greater pressure on the counterlung makes your cheeks bulge like a bugler's. That takes getting used to, too. Most strange, though, is the absence of effort, the sense that you're not doing anything to get air, and yet you have it, ever-present in the loop. It's a feeling very close to the ancient dream of cheating nature.

Fifty minutes later I still had 1,500 psi in my 30-cubic-foot cylinder,

### Is All That Training Really Necessary?

British rebreather designer Peter Readey predicts that his company, Steam Machines Incorporated, will launch its fully closed system, the PRISM Topaz, at the 1998 Diving Equipment and Marketing Association show for an accessible price of \$6,500. Like all CCs, it has powerful advantages over open-circuit—such as six hours of no-deco time at 60 feet. Plus stealth. One PRISM enthusiast described catching a garden eel in his hand. But such advantages are paid for with time spent in pre- and post-dive maintenance, and, again, in the learning curve. Readey compares his machine to a sophisticated camera: "You don't just grab it out of the closet and go diving. If you're not careful it will, well, kill you. Yes, that's the word."

der, but the rest of our group was headed for its 15-foot safety stop. Open-circuit was calling the shots on this dive. And later, long after the others had dunked their rigs and headed for the bar, I was still soaking the disassembled Atlantis parts in an antiseptic solution so it wouldn't catch any bug I might be harboring. For safety and simplicity, for grab-and-go and hose-and-stow convenience, nothing can replace open circuit. But looking ahead to ever lighter, more affordable and safer rebreathers, I know there will be places to go and fishes to meet, when an SCR or a CC will be the right tool for the job. Or as we average Joe and Jane Divers say, the right toy for the turkey.

### Caveat Emptor

Like any new, technologically sophisticated product, recreational rebreathers will continue to evolve—and experience growing pains along the way. While manufacturers are striving to produce the safest possible equipment, and training agencies are working with manufacturers to create industrywide training standards, dive consumers can do their part through a healthy skepticism both in regard to their own abilities and to the products and services out there right now. You should:

- ▶ Insist on independent testing. Of course the manufacturer says the product is safe and works great.
- ▶ Inquire about warranties and availability of spare parts. In the past, the rebreather industry has dealt mainly with the mili-

## Rebreathers At A Glance



**BMR500** TYPE• Fully closed-circuit. WEIGHT• 58 lbs. PRICE• \$7,500. CONTACT• Bio-Marine Instruments, 131 Wallace Ave., Suite 3, Downingtown, PA 19335, (610) 873-7200, fax (610) 873-1712.

**BUDDY Inspiration** TYPE• Fully closed-circuit. WEIGHT• 75 lbs. PRICE• \$5,324. CONTACT• A.P. Valves, Water-Ma-Trout Industrial Estate, Helston, Cornwall TR13 0LW England, (011) 44-1326-561040, fax (011) 44-1362-573605.

**CCR2000** TYPE• Fully closed-circuit. WEIGHT• 68-75 lbs. PRICE• \$7,460. CONTACT• Rebreathers, P.O. Box 68168, Seattle, WA 98168, (800) 678-9011, web site: [www.rebreather.com](http://www.rebreather.com).

**Cochran Closed-Circuit Rebreather** TYPE• Fully closed-circuit. WEIGHT• 58 lbs. PRICE• \$10,000. CONTACT• Cochran Undersea Technology, (972) 644-6284, fax (972) 644-6280, web site: [www.mcochran.com](http://www.mcochran.com).

**Dolphin** TYPE• Semi-closed-circuit. WEIGHT• 37 lbs. PRICE• \$2,999. CONTACT• Draeger Safety, Inc., P.O. Box 120, Pittsburgh, PA 15230, (800) 922-5518, ext. 226, fax (800) 922-5519.

**Frog** TYPE• Fully closed-circuit. WEIGHT• 24 lbs. PRICE• \$5,600. CONTACT• Marine Technology Development, Inc., 356 Aklan Court, San Jose, CA 95119, (408) 227-0743, web site: [www.frogdiver.com](http://www.frogdiver.com).

**Gator Mach 1** TYPE• Fully closed-circuit. WEIGHT• 22 lbs. without cylinders. PRICE• \$5,985. CONTACT• ANDI, 74 Woodcleft Ave., Freeport, NY 11520, (516) 546-2026, fax (516) 546-6010, web site: [www.andihq.com](http://www.andihq.com).

**Halcyon** TYPE• Passive variable ratio-biased gas addition (PVR-BASC) semi-closed-circuit. WEIGHT• 58 lbs. PRICE• \$9,000. CONTACT• Brownies Third Lung, (800) 327-0412, fax (954) 462-6115, web site: [www.halcyon.net](http://www.halcyon.net).

**MK-5P** TYPE• Fully closed-circuit. WEIGHT• 70 lbs. PRICE• \$15,000. CONTACT• Cis-Lunar Development Laboratories, P.O. Box 1143, 835 Sterling Rd., S. Lancaster, MA 01561, (978) 368-0771, fax (978) 368-0542, web site: [www.cis-lunar.com](http://www.cis-lunar.com).

**PRISM Topaz** TYPE• Fully closed-circuit. WEIGHT• 38 lbs. PRICE• \$6,500. CONTACT• Steam Machines, Incorporated, 620 Cypress Ave., Hermosa Beach, CA 90204, (310) 937-5200, fax (310) 937-7555.



tary, which buys in bulk and has rather deep pockets. This could mean that if your CO<sub>2</sub> canister needs replacing, you could be in the market for one of those \$1,500 toilet seats.

- ▶ Get the best possible training. You'll want to find a qualified instructor who owns (or has unlimited access to) the kind of rig you'll be diving. Find out how many hours he's logged on the machine. There's no substitute for that experience. ☺



# Pain-Proof Your Back

Hauling bags, schlepping gear, swimming with a tank on your spine—it can all be torture on your back. Take the dive doc's prescription for deep-sixing muscle pain before it starts. ► by **SAMUEL SHELANSKI, M.D.**

**P**reparing for a dive trip can make you feel more like a packhorse than an adventurer. Surrounded by bags of dive gear, hard cases full of cameras and one or two articles of clothing, inter-island airline baggage limitations make you laugh—then cry.

But extra baggage fees aren't the only price you pay. Dragging, carrying and pulling all that equipment can be torture on your back. Fortunately, a few simple tips can help reduce the wear and tear that can make a dive vacation more pain than pleasure.

**Symptom:** You went to lift that oversized gear bag in baggage claim and *wham!* A bolt of pain shot through your lower back.

**Diagnosis:** Bad ergonomics. The mechanics of how you lift an object are very important in reducing back strain and injury. It boils down to using the right muscles for the job.

**Rx:** You've heard it a thousand times: "Lift with your legs, not your back," and it's worth repeating a thousand more. The muscles of the legs are much stronger than those of the back, and less prone to injury from lifting. When you need to lift a heavy object, squat next to the object and lift using your legs. Never bend over an object or try to lift from the waist.

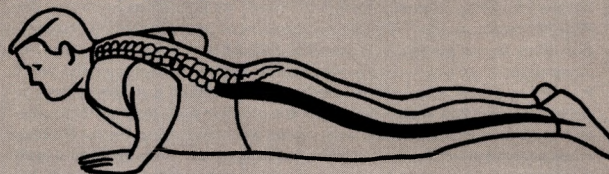
**Symptom:** You were pulling a tank out of the rack when *pow!* Now your spine feels like you got hit by a truck.

**Diagnosis:** Bent out of shape. The natural design of an upright spine allows weight to be distributed evenly and borne by the skeleton. Any weight that exerts force along a different axis than that of the spine must be offset by muscles—and that's when injuries occur. When pulling tanks from a bench-mounted rack, too many divers lean over the tank, bending their spines.

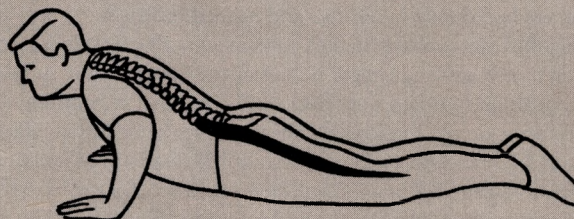
**Rx:** Straighten up. Rather than leaning over the tank, place one knee on the bench to position your body closer to the tank.

STRETCHING EXERCISES  
LIKE THIS ONE CAN HELP  
BUILD A STRONGER BACK.

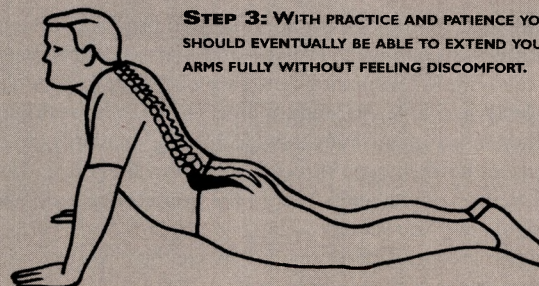
**STEP 1:** LIE TUMMY-DOWN ON THE FLOOR  
AND PLACE BOTH PALMS FLAT, FINGERS  
POINTING FORWARD.



**STEP 2:** USING YOUR ARMS, SLOWLY RAISE YOUR UPPER TORSO WHILE  
KEEPING YOUR BELLY ON THE FLOOR. DO NOT RAISE PAST THE POINT OF  
DISCOMFORT. HOLD FOR A COUNT OF 10. REPEAT TWO OR THREE TIMES.



**STEP 3:** WITH PRACTICE AND PATIENCE YOU  
SHOULD EVENTUALLY BE ABLE TO EXTEND YOUR  
ARMS FULLY WITHOUT FEELING DISCOMFORT.



**CAUTION:** DO NOT ATTEMPT THIS OR ANY OTHER BACK EXERCISE  
WITHOUT THE SUPERVISION OF YOUR DOCTOR, ESPECIALLY IF YOU HAVE A  
HISTORY OF BACK PAIN OR INJURY.

ILLUSTRATIONS BY MIKE GUSHOCK





## Exercising Prevention

Packing light and lifting correctly can help reduce the chance of back injury, but strengthening and building flexibility in the back muscles is even more important. Stretching exercises will go a long way toward building a stronger back.

This will help keep your back straight. Lift straight up, keeping the tank close to your body. This maximizes the supportive role of your spine and reduces the chance of back strain.

**Symptom:** You packed light and lifted with your legs, but your back still hurts after a day of travel.

**Diagnosis:** Bad luggage.

**Rx:** Wheeled gear bags are a great way to eliminate back strain, but only if the strap or handle is long enough so that you can walk upright while pulling the bag. Backpack-style bags should have a well-padded hip belt to allow transfer of weight from your shoulders and back to the hips. Above all, your bags should be comfortable to use.

**Symptom:** You were feeling good

about helping the crew off-load tanks when *sock!* Now all you feel is pain.

**Diagnosis:** An overdeveloped work ethic.

**Rx:** Relax and let the staff do their job. While the crew will no doubt appreciate the gesture, they'll probably appreciate a word of thanks, and a tip, even more.

If you do need to carry your gear and tank, do it in a way that minimizes back strain. BCs make great tank carriers and they distribute weight evenly across the shoulders. Weight belts? Put them on to transport them.

**Symptom:** You were getting out of your gear when *biff!* Your back went out.

**Diagnosis:** The usual suspect in cases like this is putting rotational stress on the spine that it wasn't designed to take. In other words, you're twisted.

**Rx:** A little-appreciated method for reducing back strain is to don and doff gear in the water. This eliminates the need for you to bear the weight of the tank, but requires someone on board to do the heavy lifting for you.

## MY BACK STILL *HURTS*: Should I Dive?

So you leaned over to pull someone's gear into the boat, and felt a twinge in your back. Does this mean that you flew all the way to Palau for two dives? Fortunately, the answer is usually no.

### Muscle Strain

Most diving-related back pain is caused by muscular strain and is easily treated. The current recommendation for alleviating back strain is to spend as little time lying on your back as possible and to get up as soon as you feel able. If you feel up to it, you can resume diving. Ibuprofen is useful to help deal with the pain. Hot packs and the stretching exercises illustrated here will help loosen up those tight muscles and reduce the chance of further injury. And of course, let someone else do the lifting for the next few days.

### Disk and Nerve Injuries

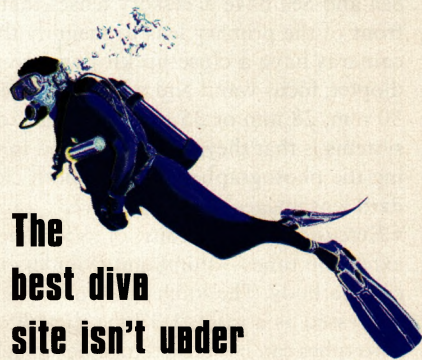
The other common type of back injury involves strain on the disks and nerves. These injuries may happen the same way as muscle strains, but are almost always accompanied by signs and symptoms of pressure on the nerves. These may include shooting leg pain, numbness or weakness of one or both legs or ankles, difficulty urinating, or problems with bowel movements.

While many of these injuries resolve themselves within a few days with rest, it is crucial to seek medical attention if there is any suspicion of neurological involvement, as some injuries require immediate intervention to prevent long-term nerve damage.

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# Macro Masterpieces

Practice these seven take-home assignments and you'll soon be creating your own works of art.

► Text & photography

by **STEPHEN FRINK**

**S**ure, macro is the easiest to learn and most quickly rewarding form of underwater photography. And yes, in some conditions—especially turbid water—macro may be your only choice. But the best reason to shoot close-ups isn't expediency. Macro photography allows you to discover and communicate parts of the reef never seen by the wide-angle eye.

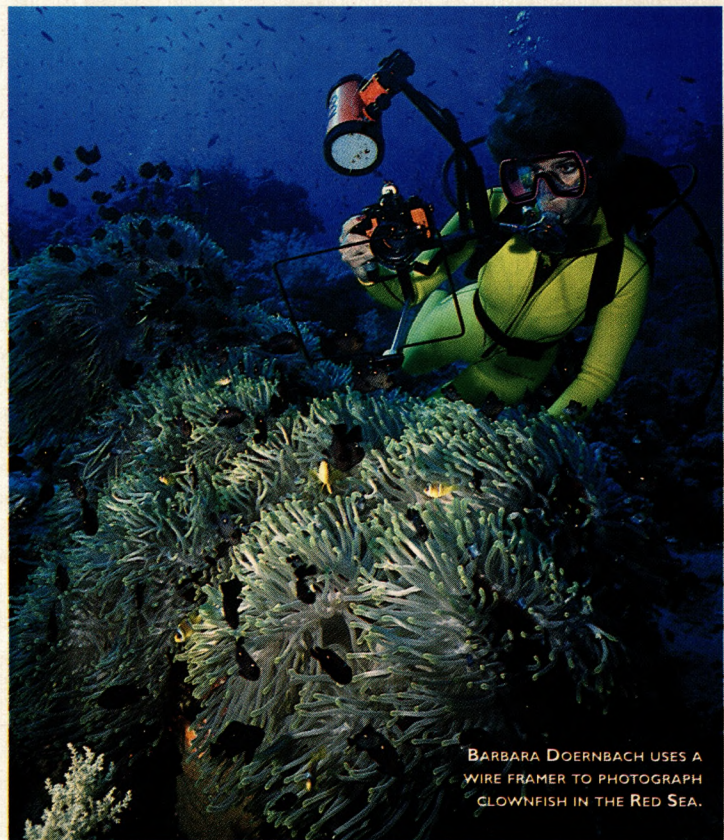
## Equipment

Whether it's a shrimp's translucent anatomy or the bizarre colors of a squid's eye, you have three basic ways to achieve the image magnification necessary for macro photography: an external magnifying lens (called a diopter), an extension tube or a macro lens on a housed camera system.

- **Diopters.** The Motor Marine II-EX and MX-10 by Sea and Sea have accessory lenses that easily mount in front of the primary lens to magnify the view. Nikonos cameras have a close-up kit consisting of an external diopter, focus wand and wire framers each sized for the 80 mm, 28 mm or 35 mm lens. One advantage to these systems is that they can be removed in the water, allowing the photographer to shoot both close-up and standard lens images on a single dive.

- **Extension tubes.** Because of its lens interchangeability, the Nikonos can also employ extension tubes—aluminum cylinders that position the entire lens farther from the camera body. The longer the tube, the greater the level of magnification, typically expressed as a ratio: 1:3 (one-third life-size), 1:2 (half life-size), and 1:1 (life-size). Two tubes can be stacked together to achieve 2:1 (twice life-size) magnification.

- **Single-lens-reflex systems.** Macro SLR photography usually means a continuous-focus lens, allowing a range from infinity down to 1:1. Within the Nikon family, the best choices are the 50 mm Micro-Nikkor for the Nikonos RS and either the 60 mm or 105



BARBARA DOERNBACH USES A WIRE FRAMER TO PHOTOGRAPH CLOWNFISH IN THE RED SEA.

mm Micro-Nikkor for a housed SLR.

Although all three lenses are bright (maximum aperture f/2.8) and share the same level of maximum magnification, the 105 mm gives the photographer the unique ability to work from a distance of 12 to 18 inches and still fill the frame with a small subject. As a result, elusive crea-



tures on the reef—tiny anthias, reclusive jawfish, delicate pipefish, and camouflaged denizens like the frogfish—all reveal their secrets to the 105 mm. In contrast, with a 60 mm macro lens, you would have to be no more than four inches away from the same subject to fill the frame. Most creatures simply will not allow you that near, no matter how stealthy your approach. The 60 mm macro lens is better suited for medium-sized fish, fish that allow the photographer to approach, or environmental portraits (when the background is used to complement the primary subject).

### Basic Technique

The framer photographer merely composes the subject within the confines of the wire target and shoots. The camera's aperture and focus are usually preset for the entire dive: minimum aperture to enhance

depth of field, and either minimum focus for the extension tube or infinity for the Nikonos close-up kit. Because the strobe is so near, there is plenty of light available for even f/22 with a fine-grain ISO 50 film. Because of the high percentage of background reflecting light back to the sensor, a TTL strobe's automatic exposure is generally accurate for macro shots.

However, a greatly narrowed depth of field can be challenging. With 1:2 macro the depth of field is only about an inch, and with 2:1 there is virtually no depth of field and the image is sharp only at the plane of the framer. If framer and subject are parallel, focus is optimized corner to corner. But when this is either impossible or undesirable, a decision has to be made as to what portion of the subject should be rendered in sharp focus. With marine life, you'll usually want the eyes to be sharp (and also the teeth if possible).

## Macro Self-Assignments

Each of the following seven assignments challenge you to explore macro techniques with subjects found on a typical Caribbean reef.

**1**

**Subject:** Fire coral

**Purpose:** To show how creative lighting can transform the mundane into the fascinating

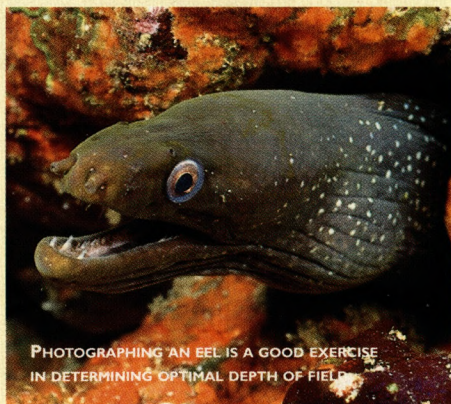
**Technique:** Fire coral is a good place to begin: it's practically everywhere and won't swim away. Find a blade of fire coral and gently place the framer next to it. Use open water to provide negative space (empty space) so that the blade and its stinging nematocysts stand out alone. Shoot first with standard lighting: 45 degrees above. Now, remove the strobe arm and hold the strobe behind the subject for back-lighting. Continue to make minute adjustments in the strobe's position so that you can see the subtle differences between front light, hard side light, top rim light and back light. Note especially how the varying light renders the nematocysts.

**2**

**Subject:** Moray eel

**Purpose:** To determine optimal depth of field for varying compositions

**Technique:** The moray eel provides a good example of a dimensional subject that requires careful consideration of depth of field. Fortunately, the eel will often stay in position long enough for you to try out some compositional variables. Try shooting the eel first from the side, basically parallel to the film plane. Next, move more to the front and compose the eel at a 45-degree angle. This shot will require you to consider where optimal depth of field should be. Try to get both the eye and teeth in crisp focus. If the level of magnification is too great to hold both in focus, try to get the teeth in sharp focus and let the background go soft.



PHOTOGRAPHING AN EEL IS A GOOD EXERCISE  
IN DETERMINING OPTIMAL DEPTH OF FIELD

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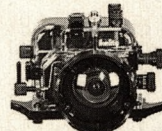


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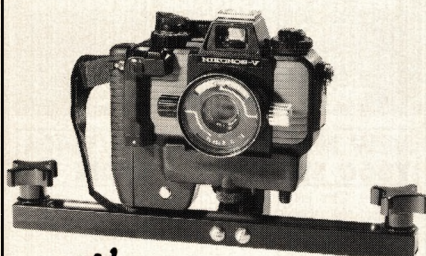
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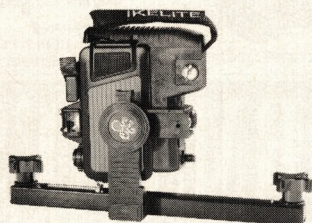
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**3**

**Subject:** Sponge and crinoid

**Purpose:** To show the effect of exposure control on color saturation

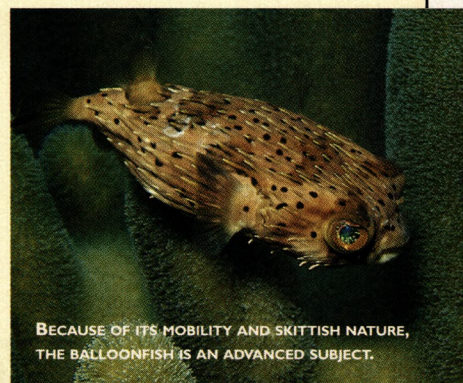
**Technique:** These stationary subjects also allow the framer photographer to approach and shoot multiple exposures. For those using a TTL automatic strobe with ISO 100 film, bracket down first to 50 ISO for a second shot, then up to 200 ISO for a third. The results will allow you to fine-tune your personal preference for macro. For those with a manual camera system, try moving the strobe closer, then farther away. It is much better to work out these exposure variables on a static subject so that when the squid swims by you can make it count.

**4**

**Subject:** Pufferfish

**Purpose:** To practice ecologically sensitive photography

**Technique:** The pufferfish is more of an advanced subject because of its mobility, but with a careful approach, a framer or an SLR shooter should have good luck. The goal is to avoid the trite and cruel "puffed puffer," where the fish is forced to balloon itself. Instead, move gently to the puffer and try to capture it in its natural environment and normal, unexcited state. Move slowly, consciously controlling your breathing and buoyancy. Pay attention to depth of field and make sure the eye stays sharp. Sometimes a pufferfish is tolerant enough for you to get a tight head shot with a 1:2 or even capture the iridescence of the eye with a 1:1. Pufferfish are usually easier to approach at night.



BECAUSE OF ITS MOBILITY AND SKITTISH NATURE, THE BALLOONFISH IS AN ADVANCED SUBJECT.

THE BEST TIME TO PHOTOGRAPH SOME FISH—LIKE THIS MANY SPOTTED SWEETLIPS—MAY BE DURING A PLEASURABLE VISIT TO A CLEANING STATION.



**5**

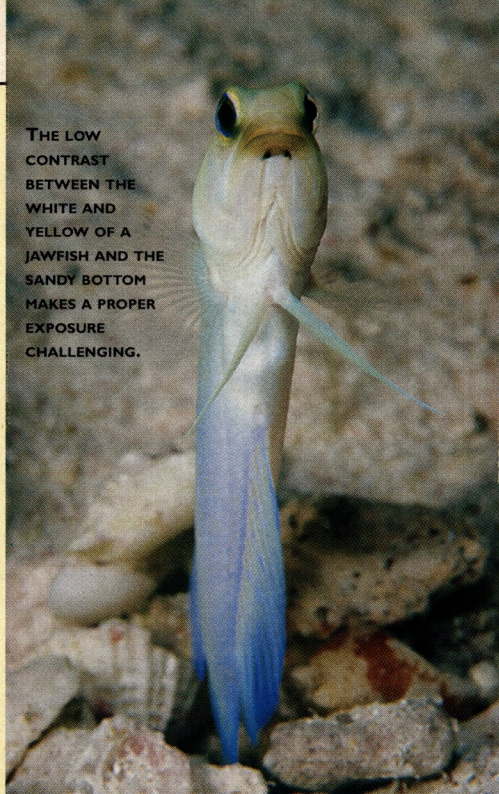
**Subject:** Cleaning station

**Purpose:** To practice approaching shy subjects

**Technique:** The symbiosis of the cleaning station provides an example of how the natural rhythms of the coral reef can be used to approach otherwise shy subjects. Depending on its past experiences with divers, a grouper that might normally flee will likely be more tolerant of a photographer while it is being cleaned. Although the fish may be too wary to accept a wire framer in its face, an SLR shooter should be able to come quite near with a slow, non-threatening approach. Try to shoot the cleaning shrimp or gobies as they work around the gills and eyes. Watch especially for the fish to open its mouth for cleaning, and be ready.



THE LOW CONTRAST BETWEEN THE WHITE AND YELLOW OF A JAWFISH AND THE SANDY BOTTOM MAKES A PROPER EXPOSURE CHALLENGING.



6

**Subject:** Sand environment  
**Purpose:** To practice exposure compensation

**Technique:** A world of life exists in the sand plateau, if you slow down and look. Peacock flounders, jawfish, lizardfish, flying gurnards, stargazers, harlequin bass and spotted snake eels are all found in the sand near a coral reef. But for these creatures to blend in with their environment, they exhibit a white or light tan protective coloring. You must compensate for their adaptive coloration to prevent overexposing the film. On your first shot, use a normal exposure setting, then bracket to create underexposure. Those shooting ISO 100 films with TTL strobes

should try shots set at 200 and 400 ISO. Those shooting manual systems should try brackets of full, half and quarter power settings on the strobe.

7

**Subject:** Parrotfish in cocoon

**Purpose:** To estimate focus distance without a wire aid

**Technique:** At night, several species of parrotfish find a coral crevice for hiding, then spin a mucous cocoon, one function of which is to alert the fish to potential predators. Merely touching the cocoon with a wire framer will signal the end of this photo-op, as well as put the fish in danger. The challenge, therefore, is to capture the subject without causing it to swim away. With the SLR there is little likelihood of disturbing the fish. However, for those using the Nikonos close-up kit, try taking the framer off and using only the wand to estimate focus. Because of the relatively generous depth of field, you should be able to get near enough for a sharp photo without touching the cocoon. As you become more adept at estimating distance, take off both wand and framer from the close-up kit, or remove the wire framer from the extension tube, and estimate focus. Sometimes the cocoon is too translucent to record, so try sprinkling a few grains of sand on it to make it stand out.



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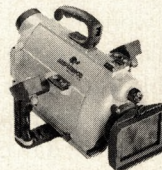
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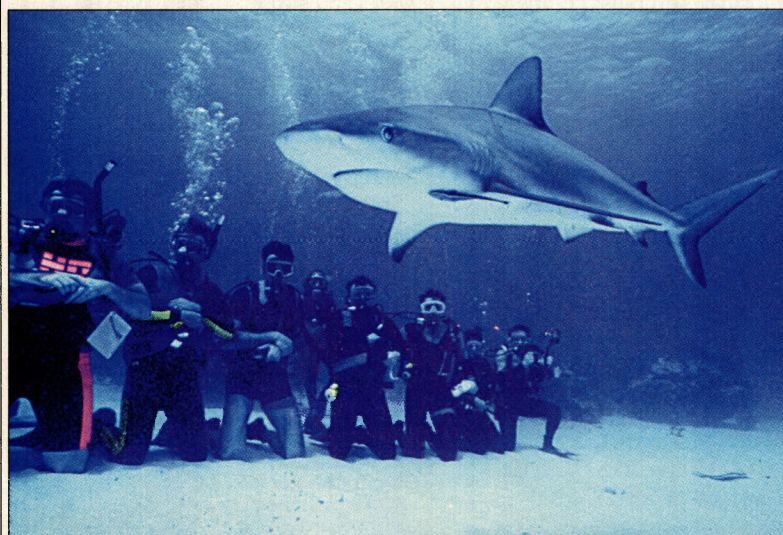


# Dive Into Adventure At UNEXSO

UNDERWATER EXPLORERS SOCIETY

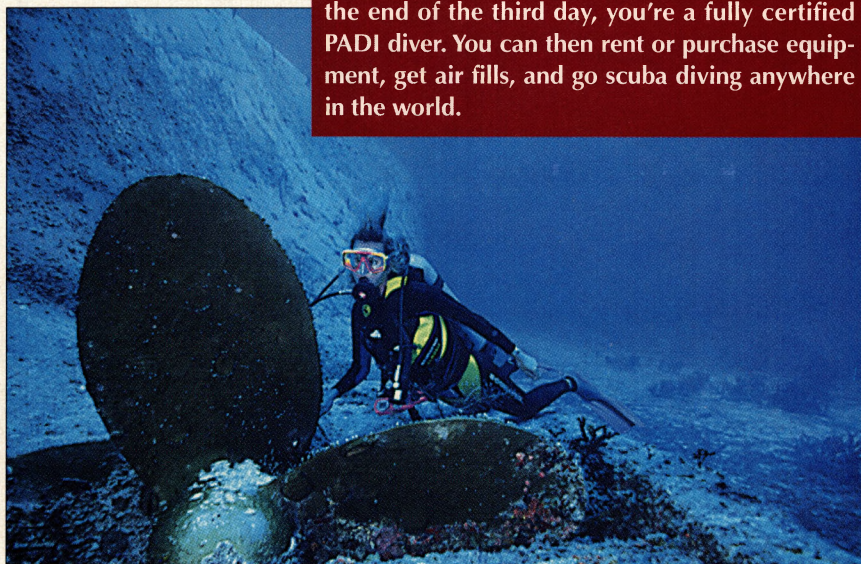
The name Underwater Explorers Society has long been synonymous with diving adventure—since UNEXSO opened its doors 33 years ago on Grand Bahama Island. Back then, the concept was bold and innovative: a resort dedicated to diving. UNEXSO was the world's first.

UNEXSO was designed as a place where divers could feel they belong, a place where divers could join in underwater exploration. Today, the spirit of innovation in diving and ocean adventure still thrives here.



*There's never a dull diving moment with UNEXSO. Don't miss world-famous Shark Junction (above) and UNEXSO's Wreck Adventure (below).*

UNEXSO has created many unique adventures and experiences. The Wreck Adventure, a two-tank computer dive on two wrecks: Theo's Wreck—a 230-foot steel freighter that perches on the edge of a wall—and another "captain's choice." The world-famous Dolphin Dive, where divers interact in the open ocean with the sociable cetaceans. The Dolphin Experience™, a non-diving close encounter at nearby Sanctuary Bay. Shark Junction, where thousands of divers have watched in awe as professional handlers feed a dozen reef sharks daily. The Shark Feeder Program, where guests experience a 4-day, VIP shark feeding adventure. Ben's Cavern, a geological wonder where divers marvel at stalactites, stalagmites, and other massive limestone formations. If you want guaranteed diving adventure, UNEXSO is the one destination for dolphins, sharks, shipwrecks, caverns and reef diving.



## LEARN TO DIVE VACATIONS

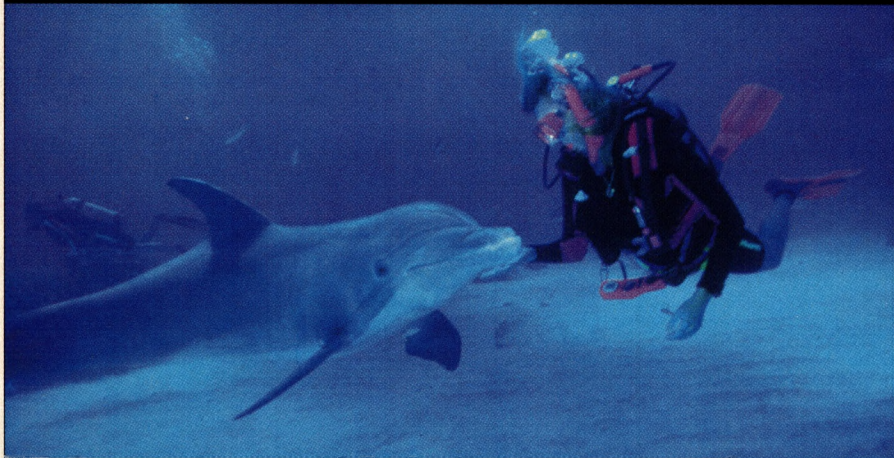
If you're not a certified diver, you needn't miss out on the scuba adventure on Grand Bahama Island. The Underwater Explorers Society has designed a unique experience that gives new meaning to the words, "What a great vacation!" Learn to Dive Vacations is a beginning diver training program. With the program, you learn the basics of diving in the comfort and convenience of your home before your trip to Grand Bahama. You'll spend your vacation time in the water, enjoying the beautiful sights of the underwater world. The program is divided into two parts.

**Part One**—Before your vacation, you learn the academics of diving with state-of-the-art, instructionally enriched training materials and videos, or a complete CD-ROM multimedia instruction system. You learn about the diving environment, how to adapt to the underwater world, diving and snorkeling equipment, and more. The Learn to Dive Vacations Program Guide carefully steers you through this portion of the program.

**Part Two**—This portion of the program is conducted on Grand Bahama Island by the expert instructional staff at UNEXSO, the official dive operator for Learn to Dive Vacations. You'll experience three fun-filled days of pool and open-water diving instruction and activities. You actually dive the coral reefs on the second day. At the end of the third day, you're a fully certified PADI diver. You can then rent or purchase equipment, get air fills, and go scuba diving anywhere in the world.



*At UNEXSO, you can interact one-on-one with one of the world's most loved mammals.*



erdale or West Palm Beach—in a half-hour, you're there. Flights depart almost every hour. Contact the diving and travel experts at UNEXSO for all your needs, including lowest-cost flights from North American gateway cities with major air carriers, convenient connections and information. Phone toll-free (800) 992-DIVE (3483) or (954) 351-9889. For a stunning virtual tour of UNEXSO and Grand Bahama or online reservations with the Java Vacation Planner, point your web browser to [www.unexso.com](http://www.unexso.com). E-mail: [info@unexso.com](mailto:info@unexso.com).

## GET IN THE SWIM WITH UNEXSO SNORKELING PROGRAMS

Lack of a scuba certification card is no barrier to adventure at UNEXSO. The thriving, shallow reefs off Grand Bahama Island are a wonderland for snorkelers. UNEXSO has designed three snorkeling adventures just for non-diving spouses and kids.

In the Fish Feeding Adventure, get up-close and personal with scores of varieties of colorful reef fish. In the Photo Adventure, learn to capture underwater memories on film with an easy-to-use Sea and Sea 35mm camera. In the Twilight Adventure, witness

firsthand the changes in the reef as daytime inhabitants retire and nighttime residents appear. Want to share your adventure with folks back home? Just say "cheese" into your snorkel—expert UNEXSO videographers record your excursions for unique vacation memories.

The expansive complex at UNEXSO is state-of-the-art. It features a well-stocked retail store and photo/video center, classrooms, docks, shallow training pool and deep tank, photo labs, even a recompression chamber.

But at the end of a day of underwater adventure, divers need to know where they're going to hang up their fins for the night. UNEXSO offers no less than six options for accommodations: Pelican Bay Resort, Port Lucaya Resort and Yacht Club, Bahamas Princess Resort and Casino, Grand Bahama Beach Hotel, Atlantic Beach Hotel and Golf Resort, and Club Fortuna Beach Resort. Whether you're traveling alone or with friends and family, UNEXSO can recommend and book a resort that fits the bill for you.

### Book It

UNEXSO offers a wide variety of options for diver training, reef and wreck trips and resort packages. Scuba vacations start at \$209. They include two nights/three days of hotel or resort accommodations and three dives. Air connections to Grand Bahama Island are a breeze. Step onto a plane at Miami, Fort Laud-



*Non-diving travelling companions don't have to feel left out. Send them off or join them on one of UNEXSO's three snorkeling adventures.*



# Del Mar Vacations For Everyone®

A WELCOME AS WARM AS THE WATER

For over 10 years, La Ceiba and Casa Del Mar resorts and Del Mar Aquatics—have welcomed divers to Cozumel in the best Mexican tradition of *mi casa es su casa* (my home is yours). And over the last 12 months, managers have gone through their operations with the proverbial fine-tooth comb, upgrading and renovating everything.

## Dive In, Amigo

Nowhere are the changes more evident than at Del Mar Aquatics, now a PADI 5-Star Facility. The operation recently earned PADI's top rating for safety, instruction, retail facilities, dive boats, purity of air fills, and overall service.

Del Mar Aquatics operates two in-house scuba

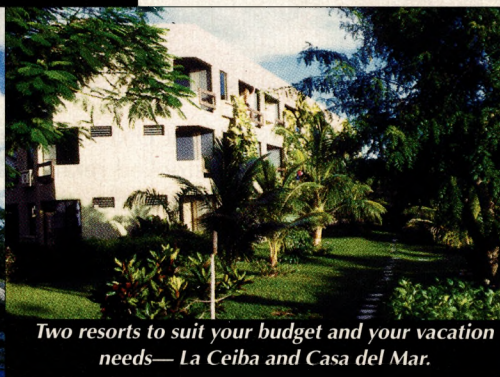


The 42-foot Big Splash is the mothership of Del Mar Aquatics' nine-boat fleet.

and watersports centers, one at Casa Del Mar, the other at La Ceiba. The look is fresh and new throughout: dive shops, retail shop, boutique, rentals, repair center and boats. Del Mar is focusing on delivering top-notch service, products and facilities to the sport diver visiting Cozumel. The dive centers replace rental stocks with new Dacor gear every six months. The dock at the Casa Del Mar shop now features a new shaded area for guests awaiting boats.

Del Mar Aquatics offers the fastest fleet of diving craft in Cozumel. Nine modern boats make up the armada. Whether your group is large or small, Del Mar has the right size boat, from the 42-foot *Big Splash* to "six packs" ideal for small groups.

Del Mar is completing a third center at Nachicocom Beach, minutes from Cozumel's best reefs and walls. The center will feature a beach club, restaurant, dock, swimming pool, restrooms, lockers, showers and a full-service scuba, snorkeling and watersports center. Guests of La Ceiba and Casa Del Mar resorts will appreciate the club's flexibility for combining family activities and diving.



Two resorts to suit your budget and your vacation needs—La Ceiba and Casa del Mar.

## Mi Casa, Es Su Casa

Casa del Mar is a handsome, friendly resort that thousands of divers have come to appreciate as their home away from home in Cozumel. The affordable 106-room resort features the outside Palapa restaurant and bar. And when you're cooling off in the pool, you can swim up for service. Spacious guest rooms and villas offer everything you expect from a first-rate hotel: balconies, air-conditioning, TV and telephone. The resort's beach is a 30-second stroll from the lobby. The most noteworthy change is the addition of a lighted tennis court, as well as all-inclusive vacation packages.

## Tradition, Comfort and Service

La Ceiba is a superior-class, full-service resort. Amenities include two restaurants, an oceanfront bar and another in the lobby, boutique, gift and underwater photo shops, adult pools and children's wading pool, travel and tour desk, and car rental center. Each of the 113 rooms

offers air-conditioning, TV, telephone, balcony and refrigerator with servi-bar. Noteworthy at La Ceiba resort is the new swimming pool and renovation of the main lobby and guest rooms.

## Book It Now

For information or reservations, phone Del Mar Aquatics, La Ceiba or Casa Del Mar toll-free from North America at (888) DELMAR3 (888-335-6273) or (800) 877-4383. Or contact your dive travel specialist or travel agent. Web: [www.mexicoweb.com/sombrero](http://www.mexicoweb.com/sombrero) E-mail: [delmar@cozumel.com.mx](mailto:delmar@cozumel.com.mx)



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When you're ready to pamper your spirit with some underwater communion, stop in at the in-house PADI and NAUI dive center. Great Adventures at Harbour Village makes your diving getaway a luxurious yet affordable experience. Pick up tanks for hours and hours of shore diving right off Harbour Village, or go for a boat trip.

The Spa is a soothing haven and escape where you can do as much—or as lit-

tle—as you choose. Feel tensions melt away with an outdoor massage as you contemplate blue waters and dancing waves. Relax as certified therapists refresh your skin. Restore your vitality with indoor and outdoor exercise programs, state-of-the-art fitness equipment, nature hikes and cycle excursions. When you're ready to pamper your stomach, Harbour Village offers no less than four restaurants for your dining pleasure.

The seven-night Great Adventures dive package features beautifully appointed marina-side accommodations, continental buffet breakfast daily, six day and one night boat dives, unlimited shore diving, rental car for a day, and use of the resort's laser boats, sunfish and kayaks. Seven-night summer rate starts at \$778 pp/do.

### Book it

Phone the Great Adventures at Harbour Village reservations office (800) 868-7477 or (305) 567-9509. Web: [www.harbourvillage.com](http://www.harbourvillage.com) E-mail: [harbourvil@aol.com](mailto:harbourvil@aol.com)



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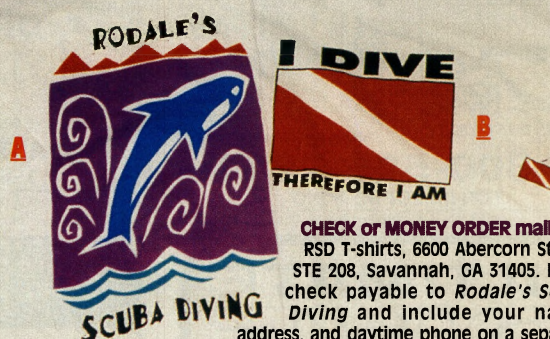
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**DESTINATION T-SHIRTS** - Port Douglas Dive Centre, Australia; Shark Boy of Bora Bora & more. Free brochure. Wave Odyssey, 2249 Elmwood, Abilene, TX 79605. [waveodyssey@bbsstreet.com](mailto:waveodyssey@bbsstreet.com); fax 915-690-0342.

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Rhonda Messex 912-351-6232  
fax 912-351-0890

## COMPUTER REVIEW

(Continued from page 70)

computers are set for fresh water so they will read slightly deeper in salt water (it reads 103 feet when you're at 100 feet). As the Aladin Pro can store only 200 minutes of detailed profiles, UWATEC makes available a Memo Mouse black box that can store up to 66 hours of recorded diving time from one or several UWATEC

levels for no-decompression limits. But what really sets it apart from other computers is that it is a two-gas computer. You can dive standard air or nitrox with between 22 percent and 50 percent oxygen for your first gas and then switch while still under water to a second gas with a greater oxygen content up to 100 percent. You can preset the depth at which you'll switch gases, and the Status II will change settings auto-

## Increased participation in altitude diving, cave diving, night diving and wreck diving has made for longer and deeper diving.

computers. This could easily cover both partners of a buddy pair on a long live-aboard dive vacation, or cover several divers.

With a self-adjusting feature built into current UWATEC computers, you need to take care not to violate the ascent rate when surfacing, especially if you have performed deco stops or are close to having to make stops. If you do violate the ascent rate, it could put you into deco mode and you could inadvertently violate the computer. Violating deco stops for any reason on an UWATEC computer will put the computer into complete lockout with no gauge mode for 24 hours plus an increased desaturation time of up to 72 hours.

## Zeagle Status II Nitrox



True tech dive computer; a very high degree of adjustability; no lockout; suitable for aggressive diving



Light switch; violations unclear

**Z**eagle has entered the computer market with a true tech diver's computer. A liberal computer with no lockout, the Status II is well-suited for aggressive diving. The Status II has multiple settings, including several different

atically. Granted, this is a lot for you and a dive computer to be able to do, so we set it and ran it on a test dive. It performed exactly as we had programmed it.

The Status II is more complex to set and use than the other computers evaluated here, but the instructions are good enough to get you through all the settings. Before each dive with this computer, particularly technical dives, you need to check each setting.

The tap switch for the light is difficult to use and if you do violate a deco stop the warn-



ZEAGLE  
STATUS II  
NITROX

ing is not clear, although Zeagle has advised us this will be corrected. A single gas version, the Status I, is available for \$200 less, making this a better buy for divers who do not change gases for decompression. ☺

*Jon Hardy is the director of RSD's ScubaLab on Catalina Island, Calif.*

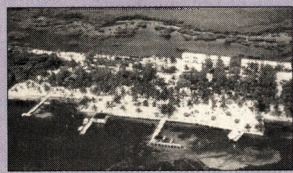
## The Test Team

Jon Hardy  
Patti Lange  
Jason Manix  
Susie Regeimbal  
Lorraine Sadler  
Kathy Stein  
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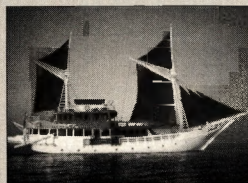
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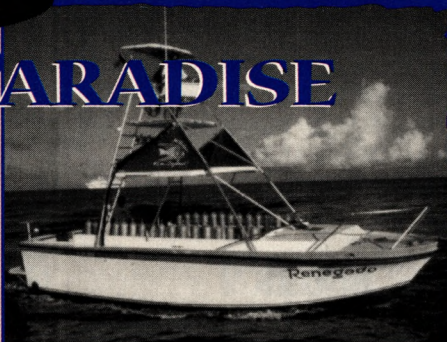
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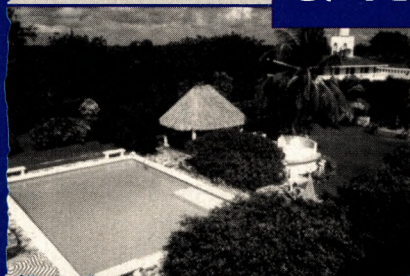
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9. WALKER'S CAY 1-800-513-5257 See ad pg. 46

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11. BAYMAN BAY CLUB 1-800-524-1823 See ad pg. 70
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24. DIVE TOURS/ALLEGRO RESORTS  
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25. DIVE TOURS/LA CEIBA BEACH & DIVE RESORT  
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29. TROPICAL TOURS, INC. 1-800-711-4700 See ad pg. 32

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30. HABITAT CURACAO 1-800-327-6709 See ad pg. 20

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32. CONCH REPUBLIC DIVERS  
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33. MONROE COUNTY TDC 1-800-FLA-KEYS See ad pg. 13

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35. HAWAIIAN DIVERS  
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### MICRONESIA

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38. SEAWARD HOLIDAYS/S.S. THORFINN  
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60. U.S. DIVERS CO., INC. 1-800-635-3483 See ad pg. 09
61. UWATEC USA INC. 1-800-951-DIVE (3483) See ad pg. 17

### DIVE TRAVEL SPECIALIST

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63. BLUE CARGO DIVE DESTINATIONS  
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64. ROATAN CHARTER, INC. 1-800-282-8932 See ad pg. 24
65. SCUBA TRAVEL VENTURES  
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66. TROPICAL ADVENTURES TRAVEL  
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68. WORLD OF DIVING  
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70. EXPLORER VENTURES, LTD.  
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## ► LESSONS FOR LIFE

# Diving Beyond Personal Limits by Jon Hardy



*Ed.'s note: This regular column presents the anatomy of a scuba diving accident and the lessons to be learned from it. The incidents described are real. Names of locations and people have been changed or deleted.*

## Setting the Stage

Many dive sites in the northern United States and Canada offer excellent diving with wonderful underwater geography and a wealth of marine life. But these dive areas are often demanding, with cold, dark, turbid waters subject to fierce currents. And so it was, on a rainy, windy April day as four divers planned a wall dive in the 75- to 100-foot range. Water temperature was in the mid-40Fs with visibility lowered by river runoff.

The group included two young adult men who had rented their gear, including wetsuits, just for this dive and two middle-aged men with most of their own gear. Two of the divers had not dived for three years, one had just completed his entry-level certification course, and one of these inexperienced divers had only dived in the tropics. The one experienced diver was equipped with a dry suit, had dived the area before and was experienced in deep diving.

The two divers who had rental gear were unfamiliar with the BCs, particularly the use of them in cold water while wearing thick gloves, and were also unsure of how much weight to wear. In spite of the conditions, all four divers were eager to make the dive.

## The Dive

The continuing foul weather did not deter the divers during their long surface swim to the area where the wall dropped off. Early during the descent one diver had buoyancy control problems, but with the help of the more experienced diver he regained control. By this time it had become apparent that the inexperienced divers were overweighted and were having difficulty using their BCs. As they passed their planned depth range, they were dropping like stones and control was slipping away from all three novice divers. At approximately 130 feet, the situation became completely out of control. The novice divers were still dropping while swimming against negative buoyancy rather than using their BCs. Confusion took over in the near-zero visibility. One diver tried to help another by holding on to him and inflating his own BC, but lost his grip and rocketed to the

surface with an overinflated BC. Not one of the divers ditched his weight belt.

The toll of the disaster: the two least experienced divers continued descending. One was never found and the other's body was later recovered from near 300 feet. The most experienced diver surfaced and was treated in a recompression chamber. The remaining diver also surfaced only to die of an air embolism.

## The Analysis

Although no legal actions came of this tragedy, an investigation revealed many human errors and ways in which the deaths could have been prevented. Clearly these divers were diving beyond their personal limits, diving with unfamiliar equipment, diving too deep for their training and experience, diving in demanding and unknown conditions, and not using good judgment. Even the experienced diver was diving beyond his limits by taking inexperienced divers into a situation beyond his ability to control or to give assistance.

## Lessons For Life

- *Be properly trained for diving*, and if you are away from diving for an extended period of time, take a refresher course with the gear you plan to use and under the conditions appropriate to your planned diving. During the refresher course, be sure you are well practiced in buoyancy checks, buoyancy control, emergency ascents, weight ditching and self-rescue.
- *Know your dive equipment*. The more of your gear that you own and use the better.
- *Know your dive site* or go with someone who does.
- *Only dive in conditions for which you have training and experience* or go with a dive pro in shallow, controlled conditions to get to know the territory.
- *Limit your depth to your level of experience*; dive where there is a bottom within this limit.
- *Dive with adequate thermal protection*. In water below 55F, a dry suit should be used, which requires additional training.



# Runaway Inflation

*Intending to give your BC a tiny blip of air, you touch the power inflator button. But the button sticks, your BC begins inflating rapidly and suddenly you're heading for the surface. What now?*

## STEP 1 Breathe.

You are now making an uncontrolled ascent. Relax, breathe easily to keep your airway open so your lungs can vent, and look up for overhead obstacles like the bottom of the boat. At the same time:

## STEP 2 Dump Air.

Calmly, but immediately, dump air from your BC by whatever means works best. On most BCs, that means yanking on the corrugated inflation hose on your left shoulder to open the remote exhaust valve. Some BCs—Scubapro's, for example—have a toggle on the front right side that opens the valve. A few BCs actually dump air faster through the oral inflator. Many BCs have an additional relief valve at the bottom right for use in a horizontal or head-down position.

## STEP 3 Get Neutral.

Regain neutral buoyancy by modulating the dump valve. On all BCs tested to date by ScubaLab, the remote exhaust valve will release air faster than the power inflator can put it in. Most will also dump fast enough through the oral inflator for you to regain neutral buoyancy. So even if the power inflator is stuck fully open (an unlikely worst case), either valve should allow you to get ahead of it and re-establish buoyancy control. Calm down and take a moment to relax.

## STEP 4 Jiggle the Button.

Is the power inflator still stuck? Sand may be lodged on the valve seat. Try pushing the button again, wiggling it and flushing water through it; the button may come unstuck. Or it may not have been stuck in the first place. Most uncontrolled ascents are actually caused by inattention to depth and buoyancy, not equipment problems. While you're doing this, keep a sharp eye on your depth so you don't lose buoyancy control again.

## STEP 5 Disconnect the Hose.

If the power inflator is still leaking air into your BC, try to pop off the quick-disconnect. Some will come off easily under water, some are impossible. If you can disconnect the air hose, you can still inflate your BC orally and, if you feel comfortable doing so, resume your dive.

## STEP 6 Flare.

If you're too close to the surface and ascending too quickly, you may be unable to regain control of your buoyancy. You can slow your ascent by flaring your body during the last 30 feet. That means arching your back with legs and arms outstretched, like an upside-down sky diver. Flaring can cut your ascent rate in half.

## STEP 7 Report.

Once back on the dive boat, report what has happened to your buddy and the dive leader so they can help you watch for signs of DCS. Be aware of any numbness, tingling, visual perception problems, pain in joints, unusual fatigue, difficulty writing, etc. If you were near your no-decompression limit when you ascended, consider oxygen therapy. If symptoms appear, start first-aid for DCS, including oxygen, and call DAN's emergency line.





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